Access DB# 63004

SEARCH REQUEST FORM

Scientific and Technical Inf rmation Center

Requester's Full Name: Andrew Wessman Examiner #: 78959 Date: 3/22/02
Art Unit: 1742 Phone Number 305-3163 Serial Number: 09/769,128
Mail Box and Bldg/Room Location: 7019 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Dry-in-place zinc phosphating compositions See bibliographic sheet

Inventors (please provide full names): Cuyler, Bradcamp, Miller, Prescott See attached bibliographic sheet

Earliest Priority Filing Date: 1/28/2000

***For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.**

zinc and phosphating
orthophosphoric acid
galvanized, galvanizing, galvanize
some adhesion promoting substance
film forming organic
amino-phenolic polymers
inorganic oxides.

claims are attached

****

STAFF USE ONLY	Type of Search	Vendors and cost where applicable
Searcher: K. Fuller	NA Sequence (#)	STN ✓
Searcher Phone #:	AA Sequence (#)	Dialog
Searcher Location:	Structure (#) 1	Questel/Orbit
Date Searcher Picked Up:	Bibliographic	Dr.Link
Date Completed: 3/27/02	Litigation	Lexis/Nexis
Searcher Prep & Review Time: 30	Fulltext	Sequence Systems
Clerical Prep Time:	Patent Family	WWW/Internet
Online Time: 55	Other	Other (specify)

PTO-1590 (8-01)

=> FILE HCAPLUS
FILE 'HCAPLUS' ENTERED AT 17:01:53 ON 26 MAR 2002
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

FILE COVERS 1907 - 26 Mar 2002 VOL 136 ISS 13
FILE LAST UPDATED: 25 Mar 2002 (20020325/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

CAS roles have been modified effective December 16, 2001. Please check your SDI profiles to see if they need to be revised. For information on CAS roles, enter HELP ROLES at an arrow prompt or use the CAS Roles thesaurus (/RL field) in this file.

The P indicator for Preparations was not generated for all of the CAS Registry Numbers that were added to the CAS files between 12/27/01 and 1/23/02. As of 1/23/02, the situation has been resolved. Searches and/or SDIs in the H/Z/CA/CAplus files incorporating CAS Registry Numbers with the P indicator executed between 12/27/01 and 1/23/02 may be incomplete. See the NEWS message on this topic for more information.

=> D QUE L53
L2 13 SEA FILE=REGISTRY ABB=ON (10381-36-9/BI OR 1314-23-4/BI OR 1344-28-1/BI OR 1344-43-0/BI OR 13463-67-7/BI OR 13598-37-3/BI OR 31257-96-2/BI OR 7631-86-9/BI OR 7779-90-0/BI OR 79-10-7/BI OR 79-41-4/BI OR 9003-01-4/BI OR 9081-54-3/BI)
L4 2 SEA FILE=REGISTRY ABB=ON L2 AND 1/ZN
L6 135 SEA FILE=REGISTRY ABB=ON (ZN(L)P(L)O(L)H)/ELS(L)4/ELC.SUB
L7 2839 SEA FILE=HCAPLUS ABB=ON L4
L8 3679 SEA FILE=HCAPLUS ABB=ON L6
L9 315 SEA FILE=HCAPLUS ABB=ON (L7 OR L8) AND GALVAN?
L10 127 SEA FILE=HCAPLUS ABB=ON L9 AND (AQ OR H2O OR WATER? OR AQUEOUS?)
L11 1 SEA FILE=HCAPLUS ABB=ON L10 AND ADHES?(5A)PROMOT?
L12 48 SEA FILE=HCAPLUS ABB=ON L10 AND ADHES?
L13 1 SEA FILE=HCAPLUS ABB=ON L10 AND INORGAN?(5A)OXIDE#
L14 11 SEA FILE=HCAPLUS ABB=ON L10 AND ?PHENOL?
L15 15 SEA FILE=HCAPLUS ABB=ON L12 AND MOA/RL
L16 21 SEA FILE=HCAPLUS ABB=ON L11 OR (L13 OR L14 OR L15)
L17 1 SEA FILE=REGISTRY ABB=ON ZIRCONIA/CN
L18 65957 SEA FILE=HCAPLUS ABB=ON L17
L19 1 SEA FILE=REGISTRY ABB=ON TITANIA/CN
L20 99104 SEA FILE=HCAPLUS ABB=ON L19
L21 1 SEA FILE=REGISTRY ABB=ON ALUMINA/CN
L22 177110 SEA FILE=HCAPLUS ABB=ON L21
L23 1 SEA FILE=REGISTRY ABB=ON SILICA/CN

```
L24      233026 SEA FILE=HCAPLUS ABB=ON  L23
L25          26 SEA FILE=HCAPLUS ABB=ON  L10 AND ( ( L24 OR SILICA/BI) OR (
                L22 OR ALUMINA/BI) OR ( L20 OR TITANIA/BI) OR ( L18 OR
                ZIRCONIA/BI) OR (ALUMINUM OR ALUMINIUM OR SILCON OR TITANIUM
                OR ZIRCONIUM)(W)OXIDE)
L26          12 SEA FILE=HCAPLUS ABB=ON  L10 AND (SIO2 OR AL2O3 OR TIO2 OR
                ZRO2)
L27          29 SEA FILE=HCAPLUS ABB=ON  L25 OR L26
L28          40 SEA FILE=HCAPLUS ABB=ON  L16 OR L27
L29          31 SEA FILE=HCAPLUS ABB=ON  L28 AND METAL#/SC,SX
L30       14674 SEA FILE=HCAPLUS ABB=ON  (ZN OR ZINC)(3A)?PHOSPHAT?
L31         796 SEA FILE=HCAPLUS ABB=ON  L30 AND ?GALVAN?
L32         333 SEA FILE=HCAPLUS ABB=ON  L31 AND (AQ OR H2O OR WATER? OR
                AQUEOUS?)
L34          29 SEA FILE=HCAPLUS ABB=ON  L32 AND (SIO2 OR AL2O3 OR TIO2 OR
                ZRO2)
L35           1 SEA FILE=REGISTRY ABB=ON  ZIRCONIA/CN
L36       65957 SEA FILE=HCAPLUS ABB=ON  L35
L37           1 SEA FILE=REGISTRY ABB=ON  TITANIA/CN
L38       99104 SEA FILE=HCAPLUS ABB=ON  L37
L39           1 SEA FILE=REGISTRY ABB=ON  ALUMINA/CN
L40      177110 SEA FILE=HCAPLUS ABB=ON  L39
L41           1 SEA FILE=REGISTRY ABB=ON  SILICA/CN
L42      233026 SEA FILE=HCAPLUS ABB=ON  L41
L43          42 SEA FILE=HCAPLUS ABB=ON  L32 AND ( ( L42 OR SILICA/BI) OR (
                L40 OR ALUMINA/BI) OR ( L38 OR TITANIA/BI) OR ( L36 OR
                ZIRCONIA/BI) OR (ALUMINUM OR ALUMINIUM OR SILCON OR TITANIUM
                OR ZIRCONIUM)(W)OXIDE)
L46          68 SEA FILE=HCAPLUS ABB=ON  L32 AND MOA/RL
L47          23 SEA FILE=HCAPLUS ABB=ON  (L43 OR L34 OR L43) AND L46
L48           2 SEA FILE=HCAPLUS ABB=ON  (L43 OR L34 OR L43) AND ?PHOSPHAT?(3A)
                COMPOSITION?
L50          21 SEA FILE=HCAPLUS ABB=ON  (L43 OR L34 OR L43) AND ?PHOSPHAT?
                AND COMPOSITION?
L51          34 SEA FILE=HCAPLUS ABB=ON  L47 OR L48 OR L50
L53          50 SEA FILE=HCAPLUS ABB=ON  L51 OR L29


=> FILE METADEX
FILE 'METADEX' ENTERED AT 17:02:09 ON 26 MAR 2002
COPYRIGHT (c) 2002 Cambridge Scientific Abstracts (CSA)

FILE LAST UPDATED: 13 MAR 2002      <20020313/UP>
FILE COVERS 1966 TO DATE.

=> D QUE L33
L30       14674 SEA FILE=HCAPLUS ABB=ON  (ZN OR ZINC)(3A)?PHOSPHAT?
L31         796 SEA FILE=HCAPLUS ABB=ON  L30 AND ?GALVAN?
L32         333 SEA FILE=HCAPLUS ABB=ON  L31 AND (AQ OR H2O OR WATER? OR
                AQUEOUS?)
L33           4 SEA FILE=HCAPLUS ABB=ON  L32 AND ADHES?(3A)PROMOT?


=> D QUE L62
L54         391 SEA FILE=METADEX ABB=ON  (ZN OR ZINC) AND PHOSPHAT? AND
                GALVAN?
L55         100 SEA FILE=METADEX ABB=ON  L54 AND (AQ OR AQUEOUS OR WATER? OR
                H2O)
L56         197 SEA FILE=METADEX ABB=ON  (ZN OR ZINC)(3A)PHOSPHAT? AND GALVAN?
```

```
L57          48 SEA FILE=METADEX ABB=ON  L55 AND L56
L58          13 SEA FILE=METADEX ABB=ON  L57 AND BATH#
L59           1 SEA FILE=METADEX ABB=ON  L57 AND (STICK? OR BINDER? OR ADHER?)

L60        4000 SEA FILE=METADEX ABB=ON  GALVANIZED STEELS+NT/CT
L61          30 SEA FILE=METADEX ABB=ON  L57 AND L60
L62          37 SEA FILE=METADEX ABB=ON  L58 OR L59 OR L61


=> FILE COMPENDEX
FILE 'COMPENDEX' ENTERED AT 17:02:31 ON 26 MAR 2002
COPYRIGHT (C) 2002 ENGINEERING INFORMATION, INC. (EI)

FILE LAST UPDATED: 25 MAR 2002      <20020325/UP>
FILE COVERS 1970 TO DATE.


=> D QUE L64
L54         391 SEA FILE=METADEX ABB=ON  (ZN OR ZINC) AND PHOSPHAT? AND
                GALVAN?
L55         100 SEA FILE=METADEX ABB=ON  L54 AND (AQ OR AQUEOUS OR WATER? OR
                H2O)
L56         197 SEA FILE=METADEX ABB=ON  (ZN OR ZINC)(3A)PHOSPHAT? AND GALVAN?

L63          19 SEA FILE=COMPENDEX ABB=ON  L55 AND L56
L64           3 SEA FILE=COMPENDEX ABB=ON  L63 AND PHOSPHATING


=> DUP REM L53 L62 L64
FILE 'HCAPLUS' ENTERED AT 17:02:46 ON 26 MAR 2002
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'METADEX' ENTERED AT 17:02:46 ON 26 MAR 2002
COPYRIGHT (c) 2002 Cambridge Scientific Abstracts (CSA)

FILE 'COMPENDEX' ENTERED AT 17:02:46 ON 26 MAR 2002
COPYRIGHT (C) 2002 ENGINEERING INFORMATION, INC. (EI)
PROCESSING COMPLETED FOR L53
PROCESSING COMPLETED FOR L62
PROCESSING COMPLETED FOR L64
L65          89 DUP REM L53 L62 L64 (1 DUPLICATE REMOVED)

=> D L65 ALL 1-89 HITSTR

L65  ANSWER 1 OF 89  HCAPLUS  COPYRIGHT 2002 ACS
AN   2002:129247  HCAPLUS
DN   136:185443
TI   Pigments and corrosion-resistant coating compositions using them
IN   Nomaguchi, Toshiyuki; Nakayama, Hiroshi; Ando, Atsushi; Miyoshi, Yasushi
PA   Mitsui Kinzoku Paints and Chemicals Co., Ltd., Japan; Nisshin Steel Co.,
     Ltd.
SO   Jpn. Kokai Tokkyo Koho, 11 pp.
     CODEN: JKXXAF
DT   Patent
LA   Japanese
IC   ICM  C09C001-62
     ICS  C09C001-02; C09C001-04; C09C001-40; C09C001-64; C09D005-00;
          C09D005-08; C09D005-10; C09D007-12; C09D201-00; C23F015-00
```

CC 42-6 (Coatings, Inks, and Related Products)

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002053769 A2		20020219	JP 2001-105147	20010403
PRAI	JP 2000-159009		20000529		

AB Title pigments comprise Zn powders and **water**-sol. Al pigments. The coating compns. consist of the pigments, **water**-thinned coating solns., and optionally extender pigments and/or rust-preventive pigments. The **water**-thinned coating solns. may contain binders of colloidal **SiO2** composite emulsions. Thus, a **compn.** contg. QAS 25 (colloidal **SiO2**), Mowinyl 8010 (colloidal **SiO2** composite emulsion), LS 2 (Zn powders), K-White 140W (Al **phosphate**-based compd.), and AW 520B (Al paste) was applied on a **galvanized** steel showing high corrosion resistance in cyclic corrosion test (JASO M 609-91).

ST aluminum zinc pigment corrosion resistance coating; rust prevention coating aluminum zinc pigment; **galvanized** steel corrosion resistance coating aluminum zinc; zinc alloy plated steel anticorrosive coating aluminum pigment

IT Polysiloxanes, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(acrylic, binders, Kanevinyl KD 11; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of **galvanized** steel)

IT Pigments, nonbiological
(aluminum- and zinc-contg. pigments for corrosion-resistant coatings of **galvanized** steel)

IT Coating materials
(anticorrosive, **water**-thinned; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of **galvanized** steel)

IT Polyurethanes, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(binders; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of **galvanized** steel)

IT Binders
(colloidal **silica**-based; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of **galvanized** steel)

IT Mica-group minerals, uses
RL: **MOA (Modifier or additive use)**; PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(extender pigments; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of **galvanized** steel)

IT **Galvanized** steel
RL: MSC (Miscellaneous)
(substrates; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of **galvanized** steel)

IT 14807-96-6, Talc, uses
RL: **MOA (Modifier or additive use)**; PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(Micron A, extender pigments; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of **galvanized** steel)

IT 7440-66-6, LS 2, uses
RL: **MOA (Modifier or additive use)**; PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(aluminum- and zinc-contg. pigments for corrosion-resistant coatings of **galvanized** steel)

IT 128152-09-0, Mowinyl 8010 140229-11-4, Olester UD 500
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or

engineered material use); USES (Uses)
(binders; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of **galvanized** steel)

IT 197179-63-8, QAS 25
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(binders; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of **galvanized** steel)

IT **7631-86-9, Silica**, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(colloidal, binders; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of **galvanized** steel)

IT 471-34-1, Calcium carbonate, uses 1314-13-2, Zinc oxide, uses 7727-43-7, Barium sulfate
RL: **MOA (Modifier or additive use)**; PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(extender pigments; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of **galvanized** steel)

IT 7429-90-5, Alpaste AW 520B, uses
RL: **MOA (Modifier or additive use)**; PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(paste; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of **galvanized** steel)

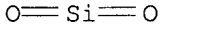
IT 7779-90-0, **Zinc phosphate** 7789-82-4, MC 400WR 10103-46-5, LF Bosei CP-Z 122493-85-0, PM 303W 161756-48-5, K-White 140W
RL: **MOA (Modifier or additive use)**; PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(rust-preventive pigments; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of **galvanized** steel)

IT 110125-44-5 208469-25-4 333365-43-8
RL: MSC (Miscellaneous)
(steel substrates plated with; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of **galvanized** steel)

IT 12597-69-2, Steel, miscellaneous
RL: MSC (Miscellaneous)
(substrates, zinc alloy- or aluminum-plated; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of **galvanized** steel)

IT **7631-86-9, Silica**, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(colloidal, binders; aluminum- and zinc-contg. pigments for corrosion-resistant coatings of **galvanized** steel)

RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 2 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 2001:798495 HCAPLUS
DN 135:347377
TI Steel sheet with multilayer coating and manufacture thereof
IN Yamaji, Takafumi; Morita, Kenji; Matsuzaki, Akira; Yamashita, Masaaki; Hamada, Etsuo
PA NKK Corporation, Japan

SO PCT Int. Appl., 156 pp.
CODEN: PIXXD2
DT Patent
LA Japanese
IC ICM C23C022-28
ICS C23C022-30; C23C022-33
CC 55-6 (Ferrous **Metals** and Alloys)
FAN.CNT 4

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001081653	A1	20011101	WO 2000-JP3876	20000615
	W: AU, CA, KR, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	JP 2001303266	A2	20011031	JP 2000-120241	20000421
	JP 2001303264	A2	20011031	JP 2000-120242	20000421
	JP 2001303265	A2	20011031	JP 2000-120243	20000421
	JP 2001316842	A2	20011116	JP 2000-130328	20000428
	JP 2001316840	A2	20011116	JP 2000-130329	20000428
	JP 2001316837	A2	20011116	JP 2000-130330	20000428
	JP 2001316838	A2	20011116	JP 2000-130331	20000428
	JP 2001316844	A2	20011116	JP 2000-130332	20000428
	JP 2001316839	A2	20011116	JP 2000-130333	20000428
PRAI	JP 2000-120241	A	20000421		
	JP 2000-120242	A	20000421		
	JP 2000-120243	A	20000421		
	JP 2000-130328	A	20000428		
	JP 2000-130329	A	20000428		
	JP 2000-130330	A	20000428		
	JP 2000-130331	A	20000428		
	JP 2000-130332	A	20000428		
	JP 2000-130333	A	20000428		

AB A surface treated steel plate comprising a steel plate, an Al-Zn alloy plated layer formed thereon, a conversion coating formed on the plated layer, and a layer having an enhanced concn. of a Cr compd. formed on the alloy plating layer side of the conversion coating. The concn. of Al in the plated layer is 25-75%. The conversion layer is obtained by coating a liq. **compn.** contg. an **aq.** resin and a chromic acid as the main components with a resin/Cr wt. ratio of 20-200 and a Cr surface d. of 3-50 mg/m2.

ST steel multilayer coating aluminum zinc alloy conversion chromium

IT Acrylic polymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(coating contg.; steel sheet with multilayer coating and manuf. thereof)

IT Coating process
(conversion; steel sheet with multilayer coating and manuf. thereof)

IT Coating materials
(multilayer; steel sheet with multilayer coating and manuf. thereof)

IT **Galvanized** steel
RL: TEM (Technical or engineered material use); USES (Uses)
(steel sheet with multilayer coating and manuf. thereof)

IT 471-34-1, Calcium carbonate, uses 1344-95-2, Calcium silicate 7664-38-2, Phosphoric acid, uses 7789-06-2, Strontium chromate srcro4 10294-40-3, Barium chromate bacro4
RL: NUU (Other use, unclassified); USES (Uses)
(coating **compn.** contg.; steel sheet with multilayer coating and manuf. thereof)

IT 100-42-5D, Styrene, polymers with acrylic monomers
RL: TEM (Technical or engineered material use); USES (Uses)

(coating contg.; steel sheet with multilayer coating and manuf. thereof)

IT **7779-90-0, Zinc phosphate** 7784-30-7, Aluminum **phosphate** 13939-25-8, Aluminum Dihydrogen **triphosphate 14332-59-3**, Zinc phosphite
RL: TEM (Technical or engineered material use); USES (Uses)
(conversion coating layer contg.; steel sheet with multilayer coating and manuf. thereof)

IT 7440-47-3, Chromium, uses 7440-70-2, Calcium, uses **7631-86-9, Silica**, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(org. coating layer contg.; steel sheet with multilayer coating and manuf. thereof)

IT 52308-11-9 64293-69-2 72373-27-4 93694-77-0 142240-64-0
RL: TEM (Technical or engineered material use); USES (Uses)
(plated layer; steel sheet with multilayer coating and manuf. thereof)

IT 12597-69-2, Steel, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(steel sheet with multilayer coating and manuf. thereof)

IT 1066-30-4, Chromium (III) acetate 7738-94-5, Chromic acid (H2CrO4) 10025-73-7, Chromium (III) chloride 13548-38-4, Chromium (III) nitrate 27115-36-2, Chromium (III) formate
RL: NUU (Other use, unclassified); USES (Uses)
(surface treatment soln. contg.; steel sheet with multilayer coating and manuf. thereof)

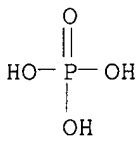
RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Nisshin Steel Co Ltd; JP 60145383 A 1985 HCAPLUS
(2) Nisshin Steel Co Ltd; JP 09241858 A 1997 HCAPLUS
(3) Nkk Corporation; JP 11302814 A 1999 HCAPLUS
(4) Nkk Corporation; JP 11343559 A 1999 HCAPLUS

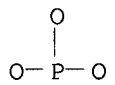
IT **7779-90-0, Zinc phosphate 14332-59-3**, Zinc phosphite
RL: TEM (Technical or engineered material use); USES (Uses)
(conversion coating layer contg.; steel sheet with multilayer coating and manuf. thereof)

RN 7779-90-0 HCAPLUS
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



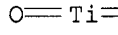
3/2 Zn

RN 14332-59-3 HCAPLUS
CN Phosphonic acid, zinc salt (1:1) (8CI, 9CI) (CA INDEX NAME)



*** FRAGMENT DIAGRAM IS INCOMPLETE ***

IT **7631-86-9, Silica**, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(org. coating layer contg.; steel sheet with multilayer coating and



L65 ANSWER 6 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 2001:651542 HCAPLUS
DN 135:212415
TI **Water**-based anticorrosive coating **compositions** and **galvanized** steel surface treated with them
IN Kashiwada, Kiyoharu; Yamamoto, Kazuto; Shiiba, Satomi; Kato, Yoshitaka
PA Kansai Paint Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C23C022-17
ICS C09D005-00; C09D005-08; C09D123-04; C09D133-02; C23C022-12; C23C028-00
CC 42-10 (Coatings, Inks, and Related Products)
Section cross-reference(s): **55**

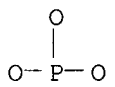
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001240978	A2	20010904	JP 2000-56966	20000302

AB The compns. with freedom from toxic metals, comprise (A) .alpha.-olefin-.alpha.,.beta.-unsatd. carboxylic acid copolymer dispersions, 100 (as solids), (B) Pb-, Cr- and Cd-free anticorrosive pigments 5-80, and hydrazine derivs. 0.5-20 parts. Thus, coating a **compn**. contg. acrylic acid-ethylene copolymer dispersion 100 (as solids), ethylene glycol monobutyl ether/BuOH 50:50 mixt. (A) 15, a Ca-modified Al dihydrogen **tripolyphosphate** 15 (as solids) and a 50% dispersion of 3-mercapto-1,2,4-triazole in A 8 (as solids) parts on the surface of a **galvanized** steel sheet and drying at 80.degree. for 20 min gave a coat film with good salt spray resistance and persistent **adhesion**.

ST anticorrosive **waterborne** coating olefin unsatd carboxylic acid copolymer; lead free anticorrosive **waterborne** coating **galvanized** steel; chromium free anticorrosive **waterborne** coating **galvanized** steel; cadmium free anticorrosive **waterborne** coating **galvanized** steel; hydrazine additive pollution free **waterborne** coating **galvanized** steel; calcium modified aluminum acid **tripolyphosphate** anticorrosive **waterborne** coating; mercaptotriazole anticorrosive **waterborne** coating **galvanized** steel

IT Coating materials
(anticorrosive; **water**-based anticorrosive coating compns. and **galvanized** steel surface treated with them)
IT Corrosion inhibitors
(pigments; **water**-based anticorrosive coating compns. and **galvanized** steel surface treated with them)
IT **Galvanized** steel
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(**water**-based anticorrosive coating compns. and **galvanized** steel surface treated with them)
IT 61-82-5, 3-Amino-1,2,4-triazole 3179-31-5, 3-Mercapto-1,2,4-triazole 16691-43-3, 3-Mercapto-5-amino-1,2,4-triazole
RL: **MOA (Modifier or additive use)**; USES (Uses)
(additive; **water**-based anticorrosive coating compns. and **galvanized** steel surface treated with them)
IT 9010-77-9, Acrylic acid-ethylene copolymer
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(coating binder; **water**-based anticorrosive coating compns. and **galvanized** steel surface treated with them)
IT 13092-66-5, Magnesium dihydrogen **phosphate 14332-59-3D**, Zinc phosphite, strontium compd.-modified 29196-72-3D, Aluminum **tripolyphosphate**, calcium or **zinc** modified 60676-86-0D, Amorphous **silica**, Ca ion-exchanged
RL: **MOA (Modifier or additive use)**; USES (Uses)
(pigments; **water**-based anticorrosive coating compns. and **galvanized** steel surface treated with them)
IT **14332-59-3D**, Zinc phosphite, strontium compd.-modified
RL: **MOA (Modifier or additive use)**; USES (Uses)
(pigments; **water**-based anticorrosive coating compns. and **galvanized** steel surface treated with them)
RN 14332-59-3 HCAPLUS
CN Phosphonic acid, zinc salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Zn

*** FRAGMENT DIAGRAM IS INCOMPLETE ***

L65 ANSWER 7 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 2001:517557 HCAPLUS
DN 135:108689
TI Environmentally friendly and corrosion-resistant precoated steel sheet and its manufacture
IN Sasaki, Kenichi; Yoshida, Keiji; Matsuzaki, Akira; Yamashita, Masaaki
PA Nkk Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 17 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B32B015-08
ICS B05D007-14; B05D007-24
CC 42-10 (Coatings, Inks, and Related Products)

Section cross-reference(s): **55**

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001191447	A2	20010717	JP 2000-5409	20000114

AB The precoated sheet comprises a **galvanized** steel sheet formed with a conversion coating contg. **SiO2** particles and a binder, an undercoating, and a top coating, where the undercoating contains a rust-preventing agent (a) a Ca component (calcd. as Ca) 1-30, (b) **SiO2** and/or silicate salt (calcd. as **SiO2**) 1-35, and (c) H3PO4 or its salt (calcd. as PO4) 1-30 parts, and optionally (d) molybdate salts, tungstate salts, phosphite salts, borates, and/or metaborates 1-50 parts and as total of (a), (b), (c), and (d) 5-100 parts vs. 100 parts solid resin components. The sheet is manufd. by coating a **compn**. contg. the above rust-preventing agent on the **galvanized** steel sheet formed with a conversion coating, baking at sheet temp. 180-260.degree., top coating, and then baking at sheet temp. 180-260.degree.. Thus, a hot-dip **galvanized** steel sheet was coated with an **aq**. soln. contg. colloidal **SiO2**, ammonium **phosphate**, and polyacrylic acid, dried, coated with a **compn**. contg. a polyester resin, CaCO3, Na4SiO4, and Zn3(PO4)2, baked at 215.degree. for 60 s, top coated, and then baked at 230.degree. for 60 s to give a Cr-free product having high corrosion resistance at worked area.

ST precoated steel corrosion inhibitor calcium silicate **phosphate** environmental friendly

IT Corrosion inhibitors
(Cr-free precoated steel sheet contg. calcium salt and silicate and **phosphate** for corrosion resistance)

IT **Galvanized** steel
RL: TEM (Technical or engineered material use); USES (Uses)
(Cr-free precoated steel sheet contg. calcium salt and silicate and **phosphate** for corrosion resistance)

IT Polyesters, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(aminoplast-, coatings; Cr-free precoated steel sheet contg. calcium salt and silicate and **phosphate** for corrosion resistance)

IT Coating materials
(anticorrosive; Cr-free precoated steel sheet contg. calcium salt and silicate and **phosphate** for corrosion resistance)

IT Coating process
(conversion; Cr-free precoated steel sheet contg. calcium salt and silicate and **phosphate** for corrosion resistance)

IT Polyesters, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(epoxy; Cr-free precoated steel sheet contg. calcium salt and silicate and **phosphate** for corrosion resistance)

IT Aminoplasts
RL: **MOA (Modifier or additive use)**; USES (Uses)
(polyester-, coatings; Cr-free precoated steel sheet contg. calcium salt and silicate and **phosphate** for corrosion resistance)

IT Polyurethanes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyester-, coatings; Cr-free precoated steel sheet contg. calcium salt and silicate and **phosphate** for corrosion resistance)

IT Epoxy resins, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(polyester-; Cr-free precoated steel sheet contg. calcium salt and silicate and **phosphate** for corrosion resistance)

IT 9003-01-4, Polyacrylic acid

RL: TEM (Technical or engineered material use); USES (Uses)
(binder, in conversion coating; Cr-free precoated steel sheet contg. calcium salt and silicate and **phosphate** for corrosion resistance)

IT 349128-82-1, Dimethyl isophthalate-dimethyl terephthalate-ethylene glycol-hexamethylene diisocyanate-neopentyl glycol copolymer
RL: TEM (Technical or engineered material use); USES (Uses)
(coating; Cr-free precoated steel sheet contg. calcium salt and silicate and **phosphate** for corrosion resistance)

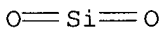
IT **7631-86-9**, Colloidal **silica**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(colloidal, conversion coating; Cr-free precoated steel sheet contg. calcium salt and silicate and **phosphate** for corrosion resistance)

IT 10124-31-9, Ammonium **orthophosphate**
RL: TEM (Technical or engineered material use); USES (Uses)
(conversion coating; Cr-free precoated steel sheet contg. calcium salt and silicate and **phosphate** for corrosion resistance)

IT 471-34-1, Calcium carbonate, uses **7779-90-0, Zinc orthophosphate** 7789-06-2, Strontium chromate 13472-30-5, Sodium silicate (Na4SiO4) 13701-59-2, Barium metaborate 23436-05-7, Barium borate 39322-06-0, Zinc tungstate 51810-70-9, Zinc phosphide 61583-60-6, Zinc molybdate
RL: **MOA (Modifier or additive use)**; USES (Uses)
(corrosion inhibitor; Cr-free precoated steel sheet contg. calcium salt and silicate and **phosphate** for corrosion resistance)

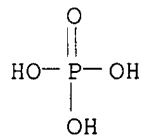
IT **7631-86-9**, Colloidal **silica**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(colloidal, conversion coating; Cr-free precoated steel sheet contg. calcium salt and silicate and **phosphate** for corrosion resistance)

RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



IT **7779-90-0, Zinc orthophosphate**
RL: **MOA (Modifier or additive use)**; USES (Uses)
(corrosion inhibitor; Cr-free precoated steel sheet contg. calcium salt and silicate and **phosphate** for corrosion resistance)

RN 7779-90-0 HCAPLUS
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 8 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 2001:479354 HCAPLUS

DN 135:78287
TI Environmentally friendly and scratch- and corrosion-resistant chromium-free precoated steel sheets and their manufacture
IN Sasaki, Kenichi; Yoshida, Keiji; Kajita, Yasuyuki; Kato, Hiroyuki
PA NKK Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B05D007-14
ICS C23C022-00; C23C022-07; C23C022-40
CC 42-8 (Coatings, Inks, and Related Products)
Section cross-reference(s): **55**
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001179175	A2	20010703	JP 1999-372209	19991228

AB The steel sheets are manufd. by applying undercoats contg. 100-120 parts (based on 100 parts resin solids) anticorrosion additives consisting of 5-100 parts compds. capable of donating **phosphate** ion in the presence of **H2O** and 5-100 parts compds. capable of donating vanadate ion in the presence of **H2O** on **galvanized** steel sheets having chem. conversion coatings contg. **SiO2** fine particles and binders, baking the undercoats at 180-260.degree., applying top coats contg. 1-15% (based on resin solids) HOR(OCOR'CO2R)nOH [n = 2-10; R = polyoxymethylene, 1,4-cyclohexylenedimethyl, neopentylene, (CH2)m; m = 1-10; R' = 2,6-naphthylene, 1,4-phenylene], 40-90% polyols except polyesters mentioned above, and 9-50% curing agents on the undercoats, and baking the coating films at 180-260.degree.. Thus, a **galvanized** steel sheet having a chem. conversion coating colloidal **SiO2** was coated with a polyester primer contg. Zn3(PO4)2 and 3CaO.V2O5 and then with a **compn**. contg. di-Me naphthalene-2,6-dicarboxylate-diethylene glycol copolymer 5.0, a polyester polyol 87.5, and HDI isocyanurate 45.0 parts to give a precoated steel sheet showing good appearance and scratch and corrosion resistance.
ST scratch resistant polyester precoated steel sheet; anticorrosive coating **phosphate** vanadate steel sheet
IT Coating materials
(anticorrosive; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)
IT Polyesters, uses
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)
IT **Galvanized** steel
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)
IT Polyethers, uses
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(polyester-; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)
IT Polyurethanes, uses

RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyester-polyether-polyisocyanurate-; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)

IT Polyisocyanurates
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyester-polyether-polyurethane-; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)

IT Polyethers, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyester-polyisocyanurate-polyurethane-; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)

IT Polyurethanes, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyester-polyisocyanurate; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)

IT Polyisocyanurates
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyester-polyurethane-; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)

IT Polyesters, uses
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(polyether-; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)

IT Polyesters, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyether-polyisocyanurate-polyurethane-; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)

IT Polyesters, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyisocyanurate-polyurethane-; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)

IT Coating materials
(scratch-resistant; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)

IT **7631-86-9**, Colloidal **silica**, uses
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(colloidal, chem. conversion coating; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)

IT 3779-63-3, Hexamethylene diisocyanate isocyanurate
RL: **MOA (Modifier or additive use)**; RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(crosslinking agent; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)

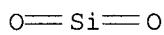
IT 28779-82-0P 30424-90-9P, 1,4-Butanediol-dimethyl naphthalene-2,6-dicarboxylate copolymer 149763-49-5P 220756-61-6P, Diethylene glycol-dimethyl naphthalene-2,6-dicarboxylate copolymer
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); RCT (Reactant); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); RACT

(Reactant or reagent); USES (Uses)
(environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)

IT 7758-23-8 **7779-90-0, Zinc phosphate**
12137-38-1, Diphosphorus tetraoxide 13550-42-0, Calcium vanadium oxide (Ca3V2O8) 115493-58-8, Manganese vanadium oxide (Mn4V2O9)
RL: **MOA (Modifier or additive use)**; USES (Uses)
(environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)

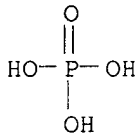
IT **7631-86-9**, Colloidal **silica**, uses
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(colloidal, chem. conversion coating; environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)

RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



IT **7779-90-0, Zinc phosphate**
RL: **MOA (Modifier or additive use)**; USES (Uses)
(environmentally friendly scratch- and corrosion-resistant chromium-free precoated steel sheets)

RN 7779-90-0 HCAPLUS
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 9 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 2001:458777 HCAPLUS
DN 135:49249
TI Solutions and process for phosphating of steel plates for overcoating peeling resistance
IN Morikawa, Shigeyasu; Nakano, Tadashi; Taketsu, Hirofumi
PA Nisshin Steel Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B05D007-14
ICS B05D007-14; B05D007-24; C23C022-17
CC 55-6 (Ferrous **Metals** and Alloys)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001170557	A2	20010626	JP 1999-362161	19991221

AB The phosphate solns. contain 2.0-100 g/L (calcd. as P) phosphates of Mn,

Mg, Mo, Zn, Ca, and/or Zr and contain oxycarboxylic acid compds. of 0.20-3.0 times the amt. of P. The soln. may also contain 0.002-2.0 times (based on the amt. of P) silane coupling agents which is partly bonded onto **silica** sol surfaces. The silane coupling agents are characterized by NMR peak intensity ratio of 29SiO3/29SiO4 0.16-1.85 (29SiO3 due to silane coupling agent and 29SiO4 due to **silica** sol). Surface treatment of steel plates by application of 5-200 mg/m2 (calcd. as P) of the soln. followed by drying at 80-250.degree., without **water** rinsing, is also claimed. Steel plates with finger print resistance, corrosion resistance, and excellent overcoating peeling resistance are obtained.

ST overcoating peeling resistance steel phosphating; steel plate phosphating oxycarboxylic acid additive; silane coupling agent additive steel phosphating

IT Carboxylic acids, processes
RL: **MOA (Modifier or additive use)**; PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(addn. of oxycarboxylic acids in phosphating of steel plates for resistance to overcoating peeling, corrosion, and finger printing)

IT Coating materials
(anticorrosive; addn. of oxycarboxylic acids in phosphating of steel plates for resistance to overcoating peeling, corrosion, and finger printing)

IT **Galvanized** steel
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(**electrogalvanized**, surface treatment of; addn. of oxycarboxylic acids in phosphating of steel plates for resistance to overcoating peeling, corrosion, and finger printing)

IT **Silica** gel, processes
RL: **MOA (Modifier or additive use)**; PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(phosphating in solns. also contg. silane coupling agents and; addn. of oxycarboxylic acids in phosphating of steel plates for resistance to overcoating peeling, corrosion, and finger printing)

IT Coating process
(phosphating; addn. of oxycarboxylic acids in phosphating of steel plates for resistance to overcoating peeling, corrosion, and finger printing)

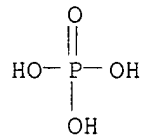
IT Coupling agents
(silane; addn. of oxycarboxylic acids in phosphating of steel plates for resistance to overcoating peeling, corrosion, and finger printing)

IT 77-92-9, Citric acid, processes 87-69-4, Tartaric acid, processes 141-82-2, Malonic acid, processes
RL: **MOA (Modifier or additive use)**; PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(addn. of oxycarboxylic acids in phosphating of steel plates for resistance to overcoating peeling, corrosion, and finger printing)

IT 7758-23-8, Calcium dihydrogenphosphate **7779-90-0**, **Zinc phosphate** 10043-83-1, Magnesium phosphate 10124-54-6, Manganese phosphate 13092-66-5, Magnesium dihydrogenphosphate 13772-29-7 18718-07-5 25013-42-7, Molybdenum phosphate
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(addn. of oxycarboxylic acids in phosphating of steel plates for resistance to overcoating peeling, corrosion, and finger printing)

IT 919-30-2, .gamma.-Aminopropyltriethoxysilane 2530-83-8, .gamma.-Glycidoxypropyltrimethoxysilane
RL: **MOA (Modifier or additive use)**; PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(phosphating in solns. also contg.; addn. of oxycarboxylic acids in phosphating of steel plates for resistance to overcoating peeling,

corrosion, and finger printing)
IT **7779-90-0, Zinc phosphate**
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(addn. of oxycarboxylic acids in phosphating of steel plates for resistance to overcoating peeling, corrosion, and finger printing)
RN 7779-90-0 HCAPLUS
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 10 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 2001:346933 HCAPLUS
DN 134:341389
TI Polymer film-steel sheet laminate showing good shape retention in press working
IN Iwai, Masatoshi; Araga, Kuniyasu; Shigeru, Hiroo
PA Kobe Steel, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 12 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B32B015-08
ICS C23C022-00
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): 42, **55**
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001129925	A2	20010515	JP 1999-311478	19991101

AB The laminate has a .gtoreq.2 .mu.m-thick org. film top layer of (A) CO2H-contg. modified olefin polymers in which 0.2-0.8 equiv of CO2H is neutralized with alkali metals or (B) active H-contg. urethane polymers contg. normal-temp. crosslinkable epoxy resins 1.0-20, spherical polyethylene wax particles whose shape is retained in the film 0.5-20, and colloidal **silica** 1-30%. Alternatively, the laminate has (1) a primary layer in 0.2-3.0 g/m2 of **Zn phosphate** film contg. 1.0-10% Ni, Mn, and/or Mg on a steel sheet and (2) a secondary layer in thickness .gtoreq.0.1 .mu.m of the above A or B on the primary layer. Thus, a **galvanized** steel sheet was sprayed to have a **Zn phosphate** layer contg. Ni and Mn, coated with an **aq.** ethylene-acrylic acid copolymer dispersion, dried to have an org. layer, and further processed to give a laminate showing good shape retention in press working and defect-free surface appearance after electrodeposition coating.
ST olefin polymer laminate steel sheet press working; urethane epoxy polymer laminate steel sheet; polyethylene wax particle polymer steel laminate; colloidal **silica** polymer steel laminate; **zinc phosphate** coating steel polymer laminate
IT Polyurethanes, uses

RL: PNU (Preparation, unclassified); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(epoxy, top layer component; polymer film-laminated steel sheet showing good shape retention in press working)

IT Laminated plastics, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(polymer film-laminated steel sheet showing good shape retention in press working)

IT Epoxy resins, uses
RL: PNU (Preparation, unclassified); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyurethane-, top layer component; polymer film-laminated steel sheet showing good shape retention in press working)

IT **Galvanized** steel
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(substrate; polymer film-laminated steel sheet showing good shape retention in press working)

IT **7631-86-9**, Colloidal **silica**, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(colloidal, top layer component; polymer film-laminated steel sheet showing good shape retention in press working)

IT **7779-90-0, Zinc phosphate**
RL: TEM (Technical or engineered material use); USES (Uses)
(primary layer on steel; polymer film-laminated steel sheet showing good shape retention in press working)

IT 12597-69-2, Steel, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(substrate; polymer film-laminated steel sheet showing good shape retention in press working)

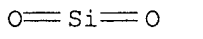
IT 9010-77-9D, Acrylic acid-ethylene copolymer, partially neutralized
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(top layer component; polymer film-laminated steel sheet showing good shape retention in press working)

IT 9002-88-4
RL: **MOA (Modifier or additive use)**; USES (Uses)
(wax, spherical particles, top layer component; polymer film-laminated steel sheet showing good shape retention in press working)

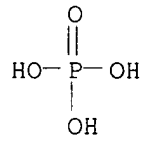
IT 7439-95-4, Magnesium, uses 7439-96-5, Manganese, uses 7440-02-0, Nickel, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(**zinc phosphate** layer component on steel; polymer film-laminated steel sheet showing good shape retention in press working)

IT **7631-86-9**, Colloidal **silica**, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(colloidal, top layer component; polymer film-laminated steel sheet showing good shape retention in press working)

RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



IT **7779-90-0, Zinc phosphate**
RL: TEM (Technical or engineered material use); USES (Uses)
(primary layer on steel; polymer film-laminated steel sheet showing good shape retention in press working)
RN 7779-90-0 HCAPLUS
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 11 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 2001:290785 HCAPLUS
DN 134:312149
TI Metal sheet with plastic covering layer for automobile body
IN Watanabe, Tadashi; Hiraki, Tadayoshi; Tominaga, Akira; Yawada, Takeshi
PA Kansai Paint Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B32B015-08
ICS B32B015-08; B05D007-14; C23C022-08; C23C022-83; C23C028-00; C25D013-00
CC 38-3 (Plastics Fabrication and Uses)
Section cross-reference(s): **55**, 72
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001113625	A2	20010424	JP 1999-295451	19991018

AB The metal sheet is that treated with a soln. contg. poly(4-**vinylphenol**) deriv. or its acid salt and covered with a plastic layer. The automobile body is made of the above metal sheet (partially) on the main portion and is subjected to electrodeposition on the metal-exposed parts. The metal sheet shows good corrosion resistance and **adhesion** of the plastic layer even in the absence of Pb or Cr compds. as anticorrosive pigments. Thus, a **galvannealed** steel sheet, after treating with Zn phosphate, was dipped in **aq.** soln. of poly(4-**vinylphenol**) deriv. (LN 80) at 50.degree., washed with **water**, dried at 110.degree. for 80 s, laminated with a polyester film through a thermosetting polyester **adhesive**, and pressed at 200.degree. for 10 min to give test pieces showing cross-cut **adhesion** 100/100 and length of filiform corrosion 0.5 mm after salt spray test.
ST steel sheet plastic cover automobile body; **polyvinylphenol** deriv corrosion inhibitor steel sheet; **adhesion** improvement **polyvinylphenol** deriv steel sheet; **galvannealed** steel sheet polyester cover anticorrosive
IT Doors
Roofs
(automotive; **polyvinylphenol** deriv. **aq.** soln. for

corrosion inhibition and enhancement of **adhesion** in steel sheet with plastic covering layer for automobile body)

IT Automobiles
(bodies; **polyvinylphenol** deriv. **aq.** soln. for corrosion inhibition and enhancement of **adhesion** in steel sheet with plastic covering layer for automobile body)

IT Polyesters, uses
RL: DEV (Device component use); USES (Uses)
(films; **polyvinylphenol** deriv. **aq.** soln. for corrosion inhibition and enhancement of **adhesion** in steel sheet with plastic covering layer for automobile body)

IT Automobiles
(hoods; **polyvinylphenol** deriv. **aq.** soln. for corrosion inhibition and enhancement of **adhesion** in steel sheet with plastic covering layer for automobile body)

IT Electrodeposition
(**polyvinylphenol** deriv. **aq.** soln. for corrosion inhibition and enhancement of **adhesion** in steel sheet with plastic covering layer for)

IT Corrosion inhibitors
(**polyvinylphenol** deriv. **aq.** soln. for corrosion inhibition and enhancement of **adhesion** in steel sheet with plastic covering layer for automobile body)

IT Laminated plastics, uses
RL: DEV (Device component use); USES (Uses)
(**polyvinylphenol** deriv. **aq.** soln. for corrosion inhibition and enhancement of **adhesion** in steel sheet with plastic covering layer for automobile body)

IT 335022-65-6, LN 80
RL: **MOA (Modifier or additive use)**; USES (Uses)
(**polyvinylphenol** deriv. **aq.** soln. for corrosion inhibition and enhancement of **adhesion** in steel sheet with plastic covering layer for automobile body)

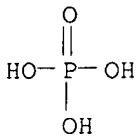
IT **7779-90-0**, Zinc phosphate
RL: **MOA (Modifier or additive use)**; USES (Uses)
(**polyvinylphenol** deriv. **aq.** soln. for corrosion inhibition and enhancement of **adhesion** of plastic covering layer on metal sheet treated with)

IT 12597-69-2, Steel, uses
RL: DEV (Device component use); USES (Uses)
(sheet; **polyvinylphenol** deriv. **aq.** soln. for corrosion inhibition and enhancement of **adhesion** in steel sheet with plastic covering layer for automobile body)

IT **7779-90-0**, Zinc phosphate
RL: **MOA (Modifier or additive use)**; USES (Uses)
(**polyvinylphenol** deriv. **aq.** soln. for corrosion inhibition and enhancement of **adhesion** of plastic covering layer on metal sheet treated with)

RN 7779-90-0 HCAPLUS

CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



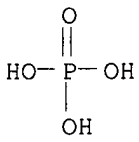
3/2 Zn

L65 ANSWER 12 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 2001:129757 HCAPLUS
DN 134:179987
TI **Water**-thinned anticorrosive coating **compositions** for metallic plates and metallic fuel tanks
IN Takahashi, Minoru; Morimoto, Osamu; Murata, Masaki; Tajika, Hiroshi
PA Toyobo Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C09D201-00
ICS C09D005-00; C09D005-08
CC 42-7 (Coatings, Inks, and Related Products)
Section cross-reference(s): **55**
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 2001049192	A2	20010220	JP 1999-227661	19990811

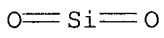
AB The title compns. (e.g., of polyesters) contain colloidal **silica** (e.g., ST-CXS 9) and/or **phosphates** (e.g., PM-303W, Mn **phosphate**, Ca **phosphate**, phosphoric acid, Al **biphosphate**) and are useful as undercoats (e.g., of acrylic polymers, epoxy resins) with curable **aq**. topcoats for anticorrosive metallic plates (e.g., of **galvanized** steel) or fuel tanks for combustible org. solvents.
ST polyester **water** thinned anticorrosive coating; acrylic polymer polyester coating metallic plate; **galvanized** steel plate polyester anticorrosive coating; combustible org solvent tank polyester anticorrosive coating
IT Aminoplasts
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(Sumimal M 40W; **water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
IT **Phosphates**, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(anticorrosive pigments; **water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
IT Coating materials
(anticorrosive, **water**-thinned; **water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
IT **Galvanized** steel
RL: TEM (Technical or engineered material use); USES (Uses)
(plates to be coated; **water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)

IT Fuel tanks
(**water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
IT Epoxy resins, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
IT Polyesters, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**water**-thinned anticorrosive coatings; **water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
IT 25068-38-6, Epikote 1010
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(Epikote 1010; **water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
IT 122493-85-0, Aluminum molybdenum oxide **phosphate** (AlMo11O26(PO4))
RL: **MOA (Modifier or additive use)**; USES (Uses)
(PM-303W, anticorrosive pigments; **water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
IT 9003-08-1, Sumimal M 40W
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(Sumimal M 40W; **water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
IT **7779-90-0, Zinc phosphate** 7784-30-7, Aluminum **phosphate** 10103-46-5, Calcium **phosphate** 10124-54-6, Manganese **phosphate**
RL: **MOA (Modifier or additive use)**; USES (Uses)
(anticorrosive pigments; **water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
IT **7631-86-9**, Colloidal **silica**, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(colloidal; **water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
IT 7429-90-5, Aluminum, uses 7440-02-0, Nickel, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(powd.; **water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
IT 822-06-0, Hexamethylene diisocyanate 122463-72-3, PVA-205
RL: **MOA (Modifier or additive use)**; USES (Uses)
(**water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
IT 87139-72-8, Diethylene glycol-ethylene glycol-isophthalic acid-sodium sulfoisophthalate-terephthalic acid copolymer 247254-80-4 326821-50-5 326821-51-6
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(**water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
IT **7779-90-0, Zinc phosphate**
RL: **MOA (Modifier or additive use)**; USES (Uses)
(anticorrosive pigments; **water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
RN 7779-90-0 HCAPLUS
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

IT **7631-86-9**, Colloidal **silica**, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(colloidal; **water**-thinned anticorrosive coating compns. for metallic plates and metallic fuel tanks)
RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 13 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 2001:40287 HCAPLUS
DN 134:102342
TI Polymer-coated steel sheet with high corrosion resistance and its manufacture
IN Yoshimi, Naoto; Ando, Satoshi; Furuta, Akihiko; Matsuzaki, Akira; Yamaji, Takafumi; Miyoshi, Tatsuya; Kubota, Takahiro; Sagiyama, Masaru; Yamashita, Masaaki
PA Nippon Kokan Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 111 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C23C022-07
ICS B05D007-14; B05D007-24; B32B015-08; C23C022-00; C23C028-00
CC 42-10 (Coatings, Inks, and Related Products)
Section cross-reference(s): **55**
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2001011645	A2	20010116	JP 1999-316441	19991108
PRAI	JP 1998-332074	A	19981108		
	JP 1998-347937	A	19981120		
	JP 1999-123808	A	19990430		

AB The coated steel sheet comprises a **galvanized** or Al alloy-plated steel sheet having an oxide lower coating and a polymer upper coating with thickness 0.1-5 .mu.m. The oxide coating contains (a) oxide microparticles and (b) H3PO4 and/or its compds., where the coating satisfies either of the following condition: (1) thickness is 0.005-3 .mu.m; (2) the total content of (a) and (b) (as P2O5) is 6-3600 mg/m2. The polymer coating mainly comprises a polymer having OH and/or COOH groups, and optionally contains 1-100 parts of inorg. rust-inhibiting pigment and/or 1-80 parts of solid lubricants to 100 parts of the polymer. In manufg. the coated steel sheet, the oxide coating is formed by using an **aq**. soln. contg. 0.001-3.0 mol/L of (a) and 0.001-6.0 mol/L of

(b). The coated steel sheet is free from Cr6+ and useful for automobile, household applications, building materials, etc. Thus, an oxide soln. contg. Snowtex O 0.11, Mg2+ 0.20, orthophosphoric acid 0.42 mol/L and then a polymer soln. contg. Epikote E 1009, Beckamine P 196M, and Aerosil R811 were applied on a **galvanized** steel sheet. The resulting coated steel sheet had high resistance to white rust and coating **adhesion**.

ST chromium free polymer coating steel corrosion resistance

IT Aminoplasts
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(alkyd resin-; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT Polyphosphoric acids
RL: **MOA (Modifier or additive use)**; USES (Uses)
(aluminum salts, rust-inhibiting pigment, polymer coating contg.; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT Alkyd resins
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(aminoplast-; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT Epoxy resins, uses
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(aminoplast; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT Coating materials
(anticorrosive; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT Aminoplasts
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(epoxy; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT Fluoropolymers, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(lubricants, polymer coating contg.; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT Corrosion inhibitors
(plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT Ionomers
Polyurethanes, uses
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material

use); PROC (Process); USES (Uses)
(plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT **Galvanized** steel
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT Lubricants
(solid; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT Polyphosphoric acids
RL: **MOA (Modifier or additive use)**; USES (Uses)
(zinc salts, rust-inhibiting pigment, polymer coating contg.; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT **1344-28-1**, **Alumina** sol 200, uses
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(colloidal, oxide coating; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT 75-35-4D, Vinylidene chloride, polymers
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(latex; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT 9002-84-0, Tetrafluoroethylene homopolymer
RL: **MOA (Modifier or additive use)**; USES (Uses)
(lubricants, polymer coating contg.; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT 58465-32-0
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(metal-plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT 2466-09-3, Pyrophosphoric acid 7664-38-2, Orthophosphoric acid, uses 7783-28-0, Diammonium phosphate
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(oxide coating contg.; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT **1314-23-4**, NZS 30A, uses **7631-86-9**, **Silica**, uses
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(oxide coating; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT 81546-24-9P 268543-23-3P 268737-65-1P 270908-96-8P
RL: IMF (Industrial manufacture); PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); PROC (Process); USES (Uses)
(plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT 9011-06-7, Krehalon AO 25608-26-8, Chemipearl S 650 152743-60-7,

Superflex 150 268736-83-0, Epomik WR 942
RL: PEP (Physical, engineering or chemical process); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT 7429-90-5, Aluminum, uses 12597-69-2, Steel, uses 12609-49-3 52308-11-9 52360-06-2 96539-23-0 112964-43-9 115253-85-5 116903-21-0 119412-76-9
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT 471-34-1, Calcium carbonate, uses 1344-95-2, Calcium silicate **7779-90-0, Zinc orthophosphate** 7784-30-7, Aluminum orthophosphate 10103-46-5, Calcium phosphate 13530-50-2, Aluminum dihydrogenphosphate 13530-54-6 **13598-37-3, Zinc dihydrogenphosphate 14332-59-3**, Zinc phosphite **14332-60-6, Zinc hydrogenphosphate** 23209-61-2, Calcium **zinc phosphate** 237762-16-2, Shieldex C303
RL: **MOA (Modifier or additive use)**; USES (Uses)
(rust-inhibiting pigment, polymer coating contg.; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT 9002-88-4, Ethene homopolymer
RL: **MOA (Modifier or additive use)**; USES (Uses)
(wax, lubricants, polymer coating contg.; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

IT **1344-28-1, Alumina** sol 200, uses
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(colloidal, oxide coating; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

RN 1344-28-1 HCAPLUS
CN Aluminum oxide (Al2O3) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

IT **1314-23-4**, NZS 30A, uses **7631-86-9, Silica**, uses
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(oxide coating; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)

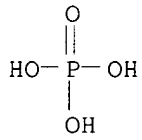
RN 1314-23-4 HCAPLUS
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

O═Zr═O

RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)

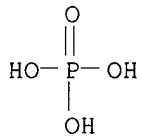
O═Si═O

IT **7779-90-0, Zinc orthophosphate**
13598-37-3, Zinc dihydrogenphosphate
14332-59-3, Zinc phosphite **14332-60-6, Zinc hydrogenphosphate**
RL: **MOA (Modifier or additive use)**; USES (Uses)
(rust-inhibiting pigment, polymer coating contg.; plated steel sheet having oxide inner coating and polymer outer coating for high corrosion resistance and coating **adhesion**)
RN 7779-90-0 HCAPLUS
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



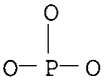
3/2 Zn

RN 13598-37-3 HCAPLUS
CN Phosphoric acid, zinc salt (2:1) (8CI, 9CI) (CA INDEX NAME)



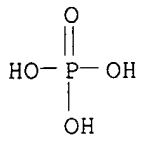
1/2 Zn

RN 14332-59-3 HCAPLUS
CN Phosphonic acid, zinc salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Zn

*** FRAGMENT DIAGRAM IS INCOMPLETE ***
RN 14332-60-6 HCAPLUS
CN Phosphoric acid, zinc salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Zn

L65 ANSWER 14 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 2001:36742 HCAPLUS
DN 134:117175
TI Powder coating process for metals including pretreatment with **phenolic** compounds to improve adhesion and corrosion resistance
IN Shida, Masatsune
PA Kansai Paint Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B05D007-14
ICS B05D003-10; B05D007-24; C09D161-04; C09D005-03; C09D201-00
CC 42-2 (Coatings, Inks, and Related Products)
Section cross-reference(s): **55**, **56**
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001009365	A2	20010116	JP 1999-180901	19990625

AB The process comprises a pretreatment of phosphate salt-treated metals with **aq**. soln. of .gtoreq.1 (2,6-C6HXY1OHCH2)n [I; n = 2-50; X = H, OH, C1-5 (hydroxy)alkyl, C6-12 aryl, benzyl, benzal, unsatd. hydrocarbon group forming a naphthalene ring with the above benzene ring, CR1R2-1,4-C6H3Y2OH; R1, R2 = H, OH, C1-5 alkyl, C1-10 hydroxyalkyl; Y1, Y2 = Z; Z = CH2NR3R4, CH2N+R5R6R7; R3-7 = H, C1-10 (hydroxy)alkyl; av. no. of Z per benzene ring (NZ) 0.2-1.0], drying, and powder coating. Thus, a steel sheet was successively immersed in Palbond L 3020 (Zn phosphate-based surface treating agent) and I (X = H; Y1 = CH2NMe2; n = 3, NZ 1.00), coated with powders contg. Epikote 1004 (**bisphenol** A epoxy resin) and adipic dihydrazide, and baked to give a test piece with good **water**, corrosion, and exfoliation resistance.
ST metal coating **phenol** pretreatment **water** corrosion resistance; **bisphenol** epoxy resin adipic hydrazide powder coating; steel zinc phosphate **phenol** amine pretreatment coating
IT Coating materials
(anticorrosive, **water**-resistant; powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)
IT **Phenols**, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(compds.; powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)
IT Epoxy resins, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)

(dihydrazide-crosslinked; powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)

IT Polyesters, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(epoxy; powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)

IT Phosphates, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(for primary surface treatment; powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)

IT Epoxy resins, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyester-; powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)

IT Polyesters, uses
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyisocyanate-crosslinked; powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)

IT **Galvanized** steel
Metals, miscellaneous
RL: MSC (Miscellaneous)
(powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)

IT **Phenolic** resins, uses
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)

IT Coating process
(powder; powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)

IT **7779-90-0**, Zinc phosphate 10402-24-1, Iron phosphate 142106-76-1, Palbond L 3020 320368-56-7, Palfos 1077
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(for primary surface treatment; powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)

IT 62300-19-0P, Butyl methacrylate-dodecanedioic acid-glycidyl methacrylate-methyl methacrylate-styrene copolymer 107375-83-7P, Adipic dihydrazide-**bisphenol** A-epichlorohydrin copolymer 191607-07-5P 320369-58-2P
RL: IMF (Industrial manufacture); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)

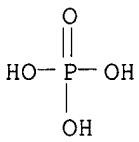
IT 12597-69-2, Steel, miscellaneous
RL: MSC (Miscellaneous)
(powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)

IT 320582-22-7 320582-65-8 320583-24-2
RL: PRP (Properties); TEM (Technical or engineered material use); USES

(Uses)
(powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)

IT **7779-90-0**, Zinc phosphate
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(for primary surface treatment; powder coating process for metals including pretreatment with **phenolic** compds. to improve adhesion and corrosion resistance)

RN 7779-90-0 HCAPLUS
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 15 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 2001:559602 HCAPLUS
DN 135:125531
TI Conversion primer bath for dried-in-place coating with **zinc phosphate** suitable for **galvanized** steel
IN Cuyler, Brian B.; Miller, Robert W.
PA Henkel Corporation, USA
SO Eur. Pat. Appl., 18 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM C23C022-12
ICS C23C022-18
CC 55-6 (Ferrous **Metals** and Alloys)
Section cross-reference(s): 42

applicants

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 1120478	A2	20010801	EP 2001-101928	20010129
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
	US 2002007872	A1	20020124	US 2001-769128	20010124
PRAI	US 2000-178685P	P	20000128		
	US 2000-245694P	P	20001103		

AB The **aq.** conversion bath for adherent coating of **galvanized** steel with **Zn phosphate** contains: (a) **phosphate** ions at 1.0-400 g/L; (b) Zn cations at 0.003-0.10 of the phosphate anion content; and (c) **adhesion promoters** selected from film-forming org. substances, amino-**phenolic** polymers, and/or **inorg. oxides** of Si, Al, Ti, and/or Zr. The phosphating bath preferably contains Mn and Ni cations, and either Fe cations or hydroxylamine. The substrate is coated in the primer bath at 20-30.degree., dried at .ltoreq.180.degree. to form the phosphate conversion coating at 0.20-1.0 g/m2, and is typically finished by painting. **Adhesion** to paint is improved when the

adhesion promoter is acrylic film former, and the **adhesion** to elastomers is improved by vinyl-**phenol** polymer in the presence of Ca cations in the phosphating bath. The **aq.** conc. for primer bath typically contains total H2PO4 40.6, Zn2+ 1.37, Fe2+ 0.15, Mn2+ 3.95, and Ni2+ 1.33%. The primer bath was prepd. with the conc. 16, poly(acrylic acid) soln. 8.0 mL, and deionized **water** for 100 mL total, and the primer coating was applied at 1.6-2.2 g/m2 with drying at 177.degree. and passed the steel strip bending test.

ST conversion bath phosphate primer **galvanized** steel; **zinc phosphate** primer bath **galvanized** steel

IT **Phenolic** resins, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(amino-, phosphating bath with; conversion primer bath for dried-in-place **Zn phosphate** coating on **galvanized** steel)

IT **Galvanized** steel
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(coating of; conversion primer bath for dried-in-place **Zn phosphate** coating on **galvanized** steel)

IT Acrylic polymers, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(phosphating bath with; conversion primer bath for dried-in-place **Zn phosphate** coating on **galvanized** steel)

IT Coating process
(phosphating, primer, bath for; conversion primer bath for dried-in-place **Zn phosphate** coating on **galvanized** steel)

IT **1314-23-4, Zirconia**, uses **1344-28-1, Alumina**, uses **7631-86-9, Silica**, uses **13463-67-7, Titania**, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(colloidal, phosphating bath with; conversion primer bath for dried-in-place **Zn phosphate** coating on **galvanized** steel)

IT 9081-54-3, Rhoplex HA-16
RL: **MOA (Modifier or additive use)**; USES (Uses)
(latex, phosphating bath with; conversion primer bath for dried-in-place **Zn phosphate** coating on **galvanized** steel)

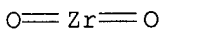
IT 79-10-7, Acrylic acid, uses 79-41-4, Methacrylic acid, uses 1344-43-0, Manganous oxide, uses 9003-01-4, Poly(acrylic acid) 10381-36-9, Nickel phosphate **13598-37-3, Zinc** dihydrogen **phosphate** 31257-96-2, Vinyl **phenol**
RL: **MOA (Modifier or additive use)**; USES (Uses)
(**phosphating** bath with; conversion primer bath for dried-in-place **Zn phosphate** coating on **galvanized** steel)

IT **7779-90-0, Zinc phosphate**
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(primer, coating with; conversion primer bath for dried-in-place **Zn phosphate** coating on **galvanized** steel)

IT **1314-23-4, Zirconia**, uses **1344-28-1, Alumina**, uses **7631-86-9, Silica**, uses **13463-67-7, Titania**, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(colloidal, phosphating bath with; conversion primer bath for dried-in-place **Zn phosphate** coating on **galvanized** steel)

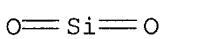
RN 1314-23-4 HCAPLUS

CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

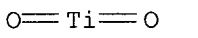


RN 1344-28-1 HCAPLUS
CN Aluminum oxide (Al2O3) (8CI, 9CI) (CA INDEX NAME)

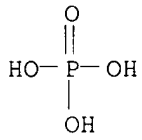
*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 13463-67-7 HCAPLUS
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)

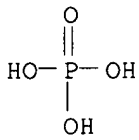


IT **13598-37-3, Zinc** dihydrogen **phosphate**
RL: **MOA (Modifier or additive use)**; USES (Uses)
(**phosphating** bath with; conversion primer bath for dried-in-place **Zn phosphate** coating on **galvanized** steel)
RN 13598-37-3 HCAPLUS
CN Phosphoric acid, zinc salt (2:1) (8CI, 9CI) (CA INDEX NAME)



1/2 Zn

IT **7779-90-0, Zinc phosphate**
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(primer, coating with; conversion primer bath for dried-in-place **Zn phosphate** coating on **galvanized** steel)
RN 7779-90-0 HCAPLUS
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 16 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 2001:596466 HCAPLUS
DN 135:324289
TI Model electrochemical cell study of cut-edge corrosion inhibition on coil-coated steel sheet by chromate-, phosphate-, and calcium-containing pigments
AU Zin, I. M.; Pokhmurskii, V. I.; Scantlebury, J. D.; Lyon, S. B.
CS Karpenko Physico-Mechanical Institute of the National Academy of Sciences of Ukraine, Lvov, 290601, Ukraine
SO Journal of the Electrochemical Society (2001), 148(8), B293-B298
CODEN: JESOAN; ISSN: 0013-4651
PB Electrochemical Society
DT Journal
LA English
CC 72-6 (Electrochemistry)
Section cross-reference(s): 42, 55
AB Corrosion at cut edges is the most important failure mechanism of org.-coated, profiled **galvanized** steel architectural claddings. Currently, edge corrosion is generally controlled by the addn. of strontium chromate in the paint primers; however, there is substantial interest in chromate replacements due to environmental reasons. This work describes an exptl. study of inhibition with specific relevance to the cut-edge situation; essentially equiv. to a small **galvanic** cell between zinc and steel. Although chromate initially acts as an anodic inhibitor for zinc corrosion at the cut edge, over a few hours of immersion, it was found to also strongly inhibit the steel cathode, hence reducing the cathodic protection current requirement on the zinc and thus acted as a mixed inhibitor in the cut-edge **galvanic** cell. Although individually, **zinc phosphate** and calcium ion-exchanged **silica** pigments had relatively poor inhibition, they showed a strong synergistic effect. Thus, a mixt. of the two compds. had comparable inhibitive efficiency to chromate. This is due to a similar mixed inhibition mechanism as chromate. Thus, anodic inhibition of zinc was evident as well as strong cathodic inhibition on the steel due to the formation of a compact, thin film contg. **zinc**, calcium, and **phosphate** species.
ST model electrochem cell study cut edge corrosion; inhibition coil coated steel sheet chromate phosphate calcium pigment
IT Acid rain
(artificial; in model electrochem. cell study of cut-edge corrosion inhibition on coil-coated steel sheet by chromate-, phosphate-, and calcium-contg. pigments)
IT Corrosion inhibitors
(chromate-, phosphate-, and calcium-contg. pigments for cut-edge corrosion of coil coated steel sheet)
IT Corrosion
(model electrochem. cell study of cut-edge corrosion)

IT Electrochemical cells
Primers (paints)
(model electrochem. cell study of cut-edge corrosion inhibition on coil-coated steel sheet by chromate-, phosphate-, and calcium-contg. pigments)
IT **Galvanized** steel
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(model electrochem. cell study of cut-edge corrosion inhibition on coil-coated steel sheet by chromate-, phosphate-, and calcium-contg. pigments)
IT Electrolytic polarization
(of sepd. steel and zinc: model electrochem. cell study of cut-edge corrosion inhibition on coil-coated steel sheet by chromate-, phosphate-, and calcium-contg. pigments)
IT 7631-99-4, Sodium nitrate, processes 7647-14-5, Sodium chloride, processes 7664-93-9, Sulfuric acid, processes 7697-37-2, Nitric acid, processes 7757-82-6, Sodium sulfate, processes 7783-20-2, Ammonium sulfate, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(artificial rain contg.; in model electrochem. cell study of cut-edge corrosion inhibition on coil-coated steel sheet by chromate-, phosphate-, and calcium-contg. pigments)
IT 7440-66-6, Zinc, properties 12597-69-2, Steel, properties
RL: PEP (Physical, engineering or chemical process); PRP (Properties); PROC (Process)
(electrolytic polarization of sepd. steel and zinc: model electrochem. cell study of cut-edge corrosion inhibition on coil-coated steel sheet by chromate-, phosphate-, and calcium-contg. pigments)
IT 7789-06-2, Strontium chromate 99085-19-5, K-White 84
RL: **MOA (Modifier or additive use)**; USES (Uses)
(pigment in artificial rain **water**; model electrochem. cell study of cut-edge corrosion inhibition on coil-coated steel sheet by chromate-, phosphate-, and calcium-contg. pigments)
IT 25013-42-7, Actirox 106 227605-13-2, Shieldex CP4 7394
RL: **MOA (Modifier or additive use)**; PRP (Properties); USES (Uses)
(pigment in artificial rain **water**; model electrochem. cell study of cut-edge corrosion inhibition on coil-coated steel sheet by chromate-, phosphate-, and calcium-contg. pigments)
RE.CNT 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Amaral, S; Corrosion (Houston) 1999, V55, P17 HCAPLUS
(2) Armstrong, R; Corros Sci 1988, V28, P1177 HCAPLUS
(3) Evans, U; Corrosion and Oxidation of Metals 1960, P136
(4) Hatch, G; Ind Eng Chem 1952, V44, P1775 HCAPLUS
(5) Howard, R; Paper 22, Presented at the 13th ICC 1996
(6) Howard, R; Prog Org Coat 1999, V37, P83 HCAPLUS
(7) Johnson, J; European Cultural Heritage Newsletter 1988, V2(4), P13
(8) Kiyoshi, K; J Met Finish Soc Jpn 1981, V32(2), P92
(9) Pokhmurska, M; Preprint no 105 1985, PLviv
(10) Porter, F; Br Corros J, London 1969, V4, P179 HCAPLUS
(11) Pryor, M; J Electrochem Soc 1951, V98, P263 HCAPLUS
(12) Szklarska-Smialowska, Z; Centre Belge D'Etude Et De Documentation Des Eaux 1967, V20(288), P474 HCAPLUS
(13) Tanizawa, Y; J Chem Soc, Faraday Trans 1995, V91, P3499 HCAPLUS
(14) Uhlig, H; J Electrochem Soc 1955, V102, P59 HCAPLUS
(15) Walter, G; Corros Sci 1993, V35, P1391 HCAPLUS
(16) Wormwell, F; Br Corros J, London 1967, V2, P6 HCAPLUS
(17) Zou, F; Galvatech '95 Conference Proceedings 1995, P837 HCAPLUS

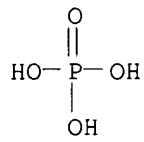
L65 ANSWER 17 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 2000:639110 HCAPLUS
DN 133:226329
TI No-rinse primer bath for applying zinc phosphate coating before painting
IN Rivera, Jose B.
PA Bulk Chemicals, Inc., USA
SO U.S., 6 pp.
CODEN: USXXAM
DT Patent
LA English
IC ICM C23C022-00
NCL 148251000
CC 56-6 (Nonferrous **Metals** and Alloys)
Section cross-reference(s): 42
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6117251	A	20000912	US 1999-275586	19990324

AB The **aq**. primer bath for forming of Zn phosphate coating on a metal surface contains: (a) Zn(H2PO4)2; (b) H3PO4; (c) polyvinyl alc. as a polyhydric alc. reactive to acid; and (d) a metal salt (esp. Ni or Co nitrates) and an optional fluoride. The typical bath is prepd. by mixing powd. ZnO 14.42, **aq**. 75% H3PO4 57.55, Co(NO3)2.6H2O 2.37, polyvinyl alc. 0.83, NH4HF2 0.03%, and deionized **water** as the balance. The coating from the bath is applied without subsequent rinsing and hot drying, and shows decreased free acidity on the metal surface. The dried Zn phosphate coating decreases metal corrosion, and increases the **adhesion** of subsequent sealant and/or paint. The bath is suitable for dark primer coating on Zn surface, esp. to decrease the reflectivity of **galvanized** steel.
ST zinc phosphate **aq** primer bath dark coating; **galvanized** steel dark coating **aq** phosphate bath
IT **Galvanized** steel
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(phosphating of; no-rinse **aq**. primer bath for applying zinc phosphate coating before painting)
IT Coating process
(phosphating, primer bath; no-rinse **aq**. primer bath for applying zinc phosphate coating before painting)
IT **7779-90-0**, Zinc phosphate
RL: TEM (Technical or engineered material use); USES (Uses)
(coating with; no-rinse **aq**. primer bath for applying zinc phosphate coating before painting)
IT 1314-13-2, Zinc oxide (ZnO), uses 1341-49-7, Ammonium bifluoride 7664-38-2, Phosphoric acid, uses 7664-39-3, Hydrofluoric acid), uses 7783-47-3, Stannous fluoride 9002-89-5, Polyvinyl alcohol 10026-22-9, Cobalt nitrate hexahydrate 13138-45-9, Nickel dinitrate **13598-37-3**, Zinc dihydrogen phosphate
RL: **MOA (Modifier or additive use)**; USES (Uses)
(phosphating bath contg.; no-rinse **aq**. primer bath for applying zinc phosphate coating before painting)
RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Kunde; "Performance Evaluation of Prephosphated Galvannealed Steel Sheet for Automotive Applications," SAE Technical Paper Series 970152 1997, P21 HCAPLUS
(2) Lautensleger; "Formability Performance of Prephosphated Galvannealed Sheet Steel," SAE Technical Paper Series 970717 1997, P147 HCAPLUS
(3) Miller; US 5378292 1995 HCAPLUS

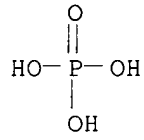
(4) Oka; US 4053328 1977 HCAPLUS
(5) Reed; US 3939014 1976 HCAPLUS
(6) Senzaki; US 4338141 1982 HCAPLUS
(7) Sienkowski; US 5261973 1993 HCAPLUS
(8) Sugama; US 4659395 1987 HCAPLUS
(9) Sugama, T; Journal of Coatings Tech 1989, V61(771), P43 HCAPLUS

IT **7779-90-0**, Zinc phosphate
RL: TEM (Technical or engineered material use); USES (Uses)
(coating with; no-rinse **aq**. primer bath for applying zinc phosphate coating before painting)
RN 7779-90-0 HCAPLUS
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

IT **13598-37-3**, Zinc dihydrogen phosphate
RL: **MOA (Modifier or additive use)**; USES (Uses)
(phosphating bath contg.; no-rinse **aq**. primer bath for applying zinc phosphate coating before painting)
RN 13598-37-3 HCAPLUS
CN Phosphoric acid, zinc salt (2:1) (8CI, 9CI) (CA INDEX NAME)



1/2 Zn

L65 ANSWER 18 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 2000:657831 HCAPLUS
DN 133:239479
TI Resin compositions and anticorrosive chromate-free coated steel plates therefrom
IN Kikuchi, Katsuhira; Tada, Chiyoko; Suzuki, Yukiko; Ogata, Hiroyuki; Umino, Shigeru
PA Kawasaki Steel Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B05D007-14
ICS C08J005-12; C08L101-02; C23C026-00
CC 42-10 (Coatings, Inks, and Related Products)

Section cross-reference(s): **55**

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000254583	A2	20000919	JP 1999-58370	19990305

AB Title compns., having a pH of 5-12, contain metal ions and base-neutralized anionic **water**-sol. resins. A **galvanized** steel plate was coated with a NH3 soln.-neutralized **aq**. compn. (pH 7.0) contg. A 6310 (acrylic acid-maleic acid copolymer) 100, Mn phosphate 5, and other additives 15 parts and baked at 135.degree. for 15 min to form a plate with good coating film **adhesion** and anticorrosion at flat surfaces and edges.

ST anticorrosion steel coating neutralized anionic resin metal ion; **adhesion** steel coating neutralized anionic resin metal ion

IT Coating materials
(anticorrosive; metal ion- and neutralized anionic resin-contg. **aq**. coatings for chromate-free steel for anticorrosion)

IT **Galvanized** steel
RL: MSC (Miscellaneous)
(metal ion- and neutralized anionic resin-contg. **aq**. coatings for chromate-free steel for anticorrosion)

IT Ionomers
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(metal ion- and neutralized anionic resin-contg. **aq**. coatings for chromate-free steel for anticorrosion)

IT 25053-28-5, Acrylic acid-vinylsulfonic acid copolymer
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(Aron A 6015; metal ion- and neutralized anionic resin-contg. **aq**. coatings for chromate-free steel for anticorrosion)

IT 29132-58-9, Acrylic acid-maleic acid copolymer
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(Aron A 6310; metal ion- and neutralized anionic resin-contg. **aq**. coatings for chromate-free steel for anticorrosion)

IT 26099-09-2, Poly(maleic acid)
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(Aron A 6510; metal ion- and neutralized anionic resin-contg. **aq**. coatings for chromate-free steel for anticorrosion)

IT **7779-90-0**, Zinc phosphate 10043-83-1, Magnesium phosphate 10124-54-6, Manganese phosphate
RL: **MOA (Modifier or additive use)**; USES (Uses)
(metal ion- and neutralized anionic resin-contg. **aq**. coatings for chromate-free steel for anticorrosion)

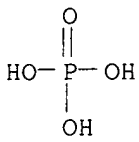
IT 9003-01-4, Aron A 30LL
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(metal ion- and neutralized anionic resin-contg. **aq**. coatings for chromate-free steel for anticorrosion)

IT 11149-84-1 37346-11-5
RL: MSC (Miscellaneous)
(platings, on steel; metal ion- and neutralized anionic resin-contg. **aq**. coatings for chromate-free steel for anticorrosion)

IT **7779-90-0**, Zinc phosphate
RL: **MOA (Modifier or additive use)**; USES (Uses)
(metal ion- and neutralized anionic resin-contg. **aq**. coatings for chromate-free steel for anticorrosion)

RN 7779-90-0 HCAPLUS

CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 19 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 2000:484171 HCAPLUS
DN 133:90819
TI Anticorrosive, nontoxic coatings for precoated metal sheets
IN Furukawa, Hiroyasu; Kanai, Hiroshi; Ueda, Kohei; Takahashi, Akira; Nomura, Hiromasa; Miyabayashi, Eimei; Hirata, Fumiaki
PA Nippon Steel Corp., Japan; Takeda Chemical Industries, Ltd.
SO Jpn. Kokai Tokkyo Koho, 14 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C09D175-04
ICS C09D005-08; C23C022-17; C23C022-40
CC 42-10 (Coatings, Inks, and Related Products)
Section cross-reference(s): **55**
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000198963	A2	20000718	JP 1998-374742	19981228

AB The coatings comprise as film-forming resin components (a) polyester polyols with functionality .gtoreq.3, (b) epoxy resins having secondary OH groups on which lactones or alkylene oxides are added, and (c) blocked org. polyisocyanates or blocked prepolymers of org. polyisocyanates and active H compds. and as non-Cr corrosion inhibitors phosphate ion sources and vanadate ion sources (forming ions in presence of **H2O** and O). Thus, 600 parts of a 1.52:3.02:2.27 (mol) hydrogenated **bisphenol** A-adipic acid-trimethylolpropane polyester polyol and 400 parts Placcel G 402 (.epsilon.-caprolactone-**bisphenol** A epoxy resin adduct) were dissolved in cyclohexanone to give a soln. (A), sep., 241.6 parts 1,3-bis(isocyanatomethyl)cyclohexane was treated with 180.6 parts Me Et ketoxime and further treated with 177.0 parts polyester polyol (adipic acid-ethylene glycol-trimethylolpropane-dipropylene glycol copolymer) to give a blocked polyisocyanate soln., 24.5 parts of which was mixed with 43.4 parts A, premixed 5 parts MgHPO4 and 5 parts Mn2O3.V2O5, and 1,1,3,3-tetrabutyl-1,3-diacetoxydistannoxane, applied on a **galvanized** steel sheet, baked, and over-coated to give a test piece showing excellent corrosion resistance.
ST epoxy polyester polyurethane coating anticorrosive steel; phosphate vanadate corrosion inhibitor polyurethane coating
IT Borosilicate glasses
RL: MOA (Modifier or additive use); USES (Uses)
(Pyrex; anticorrosive, nontoxic coatings for precoated metal sheets)
IT Glass, uses
RL: MOA (Modifier or additive use); USES (Uses)
(anticorrosive, nontoxic coatings for precoated metal sheets)

IT **Galvanized** steel
RL: MSC (Miscellaneous)
(anticorrosive, nontoxic coatings for precoated metal sheets)

IT Coating materials
(anticorrosive; anticorrosive, nontoxic coatings for precoated metal sheets)

IT Polyurethanes, uses
Polyurethanes, uses
Polyurethanes, uses
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(epoxy-polyester-; anticorrosive, nontoxic coatings for precoated metal sheets)

IT Polyesters, uses
Polyesters, uses
Polyesters, uses
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(epoxy-polyurethane-; anticorrosive, nontoxic coatings for precoated metal sheets)

IT Corrosion inhibitors
(pigments, phosphate and vanadate; anticorrosive, nontoxic coatings for precoated metal sheets)

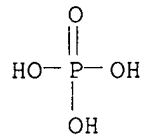
IT Epoxy resins, uses
Epoxy resins, uses
Epoxy resins, uses
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyester-polyurethane-; anticorrosive, nontoxic coatings for precoated metal sheets)

IT 502-44-3DP, .epsilon.-Caprolactone, reaction products with epoxy resins, polymers 264148-16-5P, Adipic acid-1,3-bis(isocyanatomethyl)cyclohexane-dimethyl isophthalate-dipropylene glycol-ethylene glycol-1,6-hexanediol-Placcel G 402-trimethylolpropane copolymer 264148-17-6P 264148-18-7P, Dimethyl isophthalate-1,6-hexanediol-Placcel G 402-Takenate D 160N-trimethylolpropane copolymer 264148-19-8P 264148-20-1P 264148-21-2P 264148-22-3P 264148-23-4P 264148-23-4P 281660-41-1P 281660-42-2P 281660-43-3P
RL: IMF (Industrial manufacture); POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(anticorrosive, nontoxic coatings for precoated metal sheets)

IT 1305-62-0, Calcium hydroxide, uses 1305-78-8, Calcium oxide, uses 1310-65-2, Lithium hydroxide 1314-34-7, Vanadium trioxide 1314-56-3, Phosphorus pentoxide, uses 2466-09-3, Pyrophosphoric acid 7664-38-2, Orthophosphoric acid, uses 7757-86-0 7757-87-1, Trimagnesium phosphate 7757-93-9 7758-23-8 7758-87-4, Calcium phosphate **7779-90-0**, Zinc phosphate 10343-62-1, Metaphosphoric acid 12040-58-3 13477-39-9, Calcium metaphosphate 13550-42-0, Calcium vanadium oxide (Ca3V2O8) 13573-13-2, Magnesium vanadium oxide (MgV2O6) 14100-64-2, Calcium vanadium oxide (CaV2O6)) 14986-94-8, Manganese vanadium oxide (MnV2O6) 15469-60-0, Vanadium zinc oxide (V2Zn3O8) 15607-56-4, Cobalt vanadium oxide (CoV2O6) 138882-01-6, Manganese vanadium oxide (MnVO4)
RL: MOA (Modifier or additive use); USES (Uses)
(anticorrosive, nontoxic coatings for precoated metal sheets)

IT **7779-90-0**, Zinc phosphate
RL: MOA (Modifier or additive use); USES (Uses)

(anticorrosive, nontoxic coatings for precoated metal sheets)
RN 7779-90-0 HCAPLUS
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



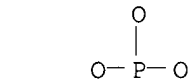
3/2 Zn

L65 ANSWER 20 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 2000:405489 HCAPLUS
DN 133:31883
TI Nonpolluting precoated metal sheets with excellent adhesion of coatings
IN Furukawa, Hiroyasu; Ueda, Kohei; Nomura, Hiromasa; Takahashi, Akira; Kanai, Hiroshi
PA Nippon Steel Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B05D007-14
ICS B05D007-24; B32B015-08
CC 42-10 (Coatings, Inks, and Related Products)
Section cross-reference(s): **55**
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000167482	A2	20000620	JP 1998-340633	19981130

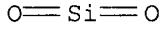
AB At least one side of metal sheets is coated with a layer contg. 100 parts (as solid) **aq**. resins, 0.2-50 parts tannin or tannic acid, and optionally 10-500 parts **SiO2** microparticles and further coated with a color layer. Thus, an electrogalvanized steel sheet was coated with an acrylic olefin resin contg. 2.5 phr tannic acid Al and 30 phr Snowtex N, dried at 150.degree., primed with a polyester contg. Zn phosphite, dried at 220.degree., further coated with FL 100HQ (polyester), and dried at 220.degree. to give a test piece showing excellent adhesion of the top coat even after immersion in boiling **water** and good processability.
ST nonpolluting precoated steel tannic acid base
IT Tannins
RL: TEM (Technical or engineered material use); USES (Uses)
(Brewtan, Tanal 1; nonpolluting precoated metal sheets with good adhesion of coatings)
IT Tannins
RL: TEM (Technical or engineered material use); USES (Uses)
(aluminum salts; nonpolluting precoated metal sheets with good adhesion of coatings)
IT Molybdates
Phosphates, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(anticorrosive pigments, primers contg.; nonpolluting precoated metal sheets with good adhesion of coatings)

IT Coating materials
(anticorrosive; nonpolluting precoated metal sheets with good adhesion of coatings)
IT Acrylic polymers, uses
Epoxy resins, uses
Galvanized steel
Polyesters, uses
Polyurethanes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(nonpolluting precoated metal sheets with good adhesion of coatings)
IT Group VB element compounds
RL: TEM (Technical or engineered material use); USES (Uses)
(vanadates, anticorrosive pigments, primers contg.; nonpolluting precoated metal sheets with good adhesion of coatings)
IT **14332-59-3**, Zinc phosphite
RL: TEM (Technical or engineered material use); USES (Uses)
(anticorrosive pigments, primers contg.; nonpolluting precoated metal sheets with good adhesion of coatings)
IT **7631-86-9**, Snowtex N, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(colloidal; nonpolluting precoated metal sheets with good adhesion of coatings)
IT 264189-52-8, FL 100HQ
RL: TEM (Technical or engineered material use); USES (Uses)
(nonpolluting precoated metal sheets with good adhesion of coatings)
IT 269734-06-7, P 108 (Epoxy resin) 269734-07-8, P 641 (Polymer)
269734-14-7, P 304
RL: TEM (Technical or engineered material use); USES (Uses)
(primer; nonpolluting precoated metal sheets with good adhesion of coatings)
IT **14332-59-3**, Zinc phosphite
RL: TEM (Technical or engineered material use); USES (Uses)
(anticorrosive pigments, primers contg.; nonpolluting precoated metal sheets with good adhesion of coatings)
RN 14332-59-3 HCAPLUS
CN Phosphonic acid, zinc salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Zn

*** FRAGMENT DIAGRAM IS INCOMPLETE ***
IT **7631-86-9**, Snowtex N, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(colloidal; nonpolluting precoated metal sheets with good adhesion of coatings)
RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 21 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 2000:301084 HCAPLUS
DN 132:324435
TI Resin-coated **galvanized** steel plates with good **adhesion** and anticorrosion
IN Ishizuka, Kiyokazu
PA Nippon Steel Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C23C028-00
ICS B05D003-10; B05D007-14; B05D007-24; C23C020-06
CC 55-6 (Ferrous **Metals** and Alloys)
Section cross-reference(s): 42
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000129460	A2	20000509	JP 1998-308723	19981029

AB Title steel plates with no chromium treatment are prepd. by plating with zinc (alloy), treating with **aq.** soln. contg. phosphoric acid polyvalent metal salt and metal oxide sol to form an amorphous layer of 0.05-1 g/m2, and finally coating with a resin layer of 0.5-2 g/m2. Thus, an electrogalvanized steel sheet was coated with a 0.05-g/m2 layer contg. Mg(H2PO4)2 100 and **silica** sol 30 parts, and then with 1.0-g/m2 layer contg. ethylene-acrylic acid copolymer 100 and **silica** sol 30 parts, showing good naked anticorrosion and **adhesion** properties.
ST **galvanized** steel resin coating anticorrosion **adhesion**; acrylic acid ethylene copolymer coating **galvanized** steel anticorrosion **adhesion**; magnesium phosphate colloidal **silica galvanized** steel anticorrosion **adhesion**
IT Epoxy resins, properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(acrylic; prepn. of resin-coated **galvanized** steel plates with good **adhesion** and anticorrosion)
IT Coating materials
(anticorrosive; prepn. of resin-coated **galvanized** steel plates with good **adhesion** and anticorrosion)
IT Coating process
(prepn. of resin-coated **galvanized** steel plates with good **adhesion** and anticorrosion)
IT **Galvanized** steel
RL: PEP (Physical, engineering or chemical process); PRP (Properties); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(prepn. of resin-coated **galvanized** steel plates with good **adhesion** and anticorrosion)
IT Acrylic polymers, properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(prepn. of resin-coated **galvanized** steel plates with good **adhesion** and anticorrosion)
IT Polyurethanes, properties
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(prepn. of resin-coated **galvanized** steel plates with good **adhesion** and anticorrosion)
IT **7631-86-9, Silica**, uses
RL: **MOA (Modifier or additive use)**; TEM (Technical or engineered

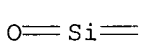
material use); USES (Uses)
(prepn. of resin-coated **galvanized** steel plates with good **adhesion** and anticorrosion)

IT 9002-88-4 9010-77-9, Acrylic acid-ethylene copolymer
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(prepn. of resin-coated **galvanized** steel plates with good **adhesion** and anticorrosion)

IT **1314-23-4, Zirconia**, uses **1344-28-1**, **Aluminum oxide**, uses 7758-23-8, Calcium biphosphate 10043-83-1, Magnesium phosphate **13463-67-7, Titania**, uses 13530-50-2, Aluminum primary phosphate **13598-37-3** 14154-09-7, Manganese phosphate
RL: TEM (Technical or engineered material use); USES (Uses)
(prepn. of resin-coated **galvanized** steel plates with good **adhesion** and anticorrosion)

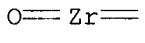
IT **7631-86-9, Silica**, uses
RL: **MOA (Modifier or additive use)**; TEM (Technical or engineered material use); USES (Uses)
(prepn. of resin-coated **galvanized** steel plates with good **adhesion** and anticorrosion)

RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



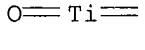
IT **1314-23-4, Zirconia**, uses **1344-28-1**, **Aluminum oxide**, uses **13463-67-7**, **Titania**, uses **13598-37-3**
RL: TEM (Technical or engineered material use); USES (Uses)
(prepn. of resin-coated **galvanized** steel plates with good **adhesion** and anticorrosion)

RN 1314-23-4 HCAPLUS
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

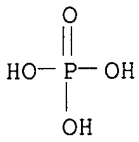


RN 1344-28-1 HCAPLUS
CN Aluminum oxide (Al2O3) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 13463-67-7 HCAPLUS
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)



RN 13598-37-3 HCAPLUS
CN Phosphoric acid, zinc salt (2:1) (8CI, 9CI) (CA INDEX NAME)



1/2 Zn

L65 ANSWER 22 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 2000:300439 HCAPLUS
DN 132:335885
TI Metal sheet having chromium-free matte coating with good resistance to corrosion and acid
IN Tanaka, Shoichi; Nakano, Takashi
PA Kansai Paint Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 11 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B05D005-06
ICS B32B015-08; C09D005-00; C09D167-00
CC 42-10 (Coatings, Inks, and Related Products)
Section cross-reference(s): **55, 56**
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000126677	A2	20000509	JP 1998-305231	19981027

AB The sheet has (A) a primer layer (glass transition temp. 40-125.degree.) contg. 7-60% pigments chosen from Cr-free anticorrosive pigments and **silica** microparticles showing oil absorption 30-200 mL/100 g and pore vol. 0.05-1.2 mL/g and (B) a wrinkled matte topcoat. A Zn-Al coated steel sheet was chromated, coated with a primer contg. Vylon EP 2940 (epoxy-modified polyester) 75, Ti white 30, Al tripolyphosphate 10, Sylysia 740 50, Cymel 303 25, and Nacure 5225 0.5 part, and topcoated with KP Color 1540NM Blue to give a test piece showing good processability, coating **adhesion**, and resistance to corrosion, boiling **water**, and acid.
ST metal sheet matte coating corrosion resistance; acid resistance matte coating metal sheet; steel sheet primer epoxy polyester pigment; chromium free pigment primer metal sheet
IT Coating materials
(acid-resistant; metal sheet having Cr-free matte coating with good corrosion and acid resistance)
IT Coating materials
(anticorrosive; metal sheet having Cr-free matte coating with good corrosion and acid resistance)
IT Polyesters, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(hydroxy-contg., primers; metal sheet having Cr-free matte coating with good corrosion and acid resistance)
IT Coating materials
(matte; metal sheet having Cr-free matte coating with good corrosion and acid resistance)
IT Primers (paints)

(metal sheet having Cr-free matte coating with good corrosion and acid resistance)

IT **Galvanized** steel
Metals, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(metal sheet having Cr-free matte coating with good corrosion and acid resistance)

IT **Silica** gel, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(pigments in primers, Sylysia 740; metal sheet having Cr-free matte coating with good corrosion and acid resistance)

IT Corrosion inhibitors
(pigments, in primers; metal sheet having Cr-free matte coating with good corrosion and acid resistance)

IT Epoxy resins, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(primers; metal sheet having Cr-free matte coating with good corrosion and acid resistance)

IT **7631-86-9, Silica,** uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(Mizukasil P 766, pigment in primers; metal sheet having Cr-free matte coating with good corrosion and acid resistance)

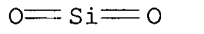
IT **7779-90-0, Zinc phosphate** 15099-32-8, Aluminum phosphite 29196-72-3, Aluminum tripolyphosphate 237762-16-2, Shieldex C 303
RL: **MOA (Modifier or additive use)**; USES (Uses)
(anticorrosive pigment in primers; metal sheet having Cr-free matte coating with good corrosion and acid resistance)

IT 7429-90-5, Aluminum, uses 12597-69-2, Steel, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(metal sheet having Cr-free matte coating with good corrosion and acid resistance)

IT 143186-46-3, Cymel 303-Vylon 29CS copolymer 237743-49-6 237743-50-9 237762-17-3 237762-18-4 267230-04-6
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(primer; metal sheet having Cr-free matte coating with good corrosion and acid resistance)

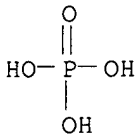
IT **7631-86-9, Silica,** uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(Mizukasil P 766, pigment in primers; metal sheet having Cr-free matte coating with good corrosion and acid resistance)

RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



IT **7779-90-0, Zinc phosphate**
RL: **MOA (Modifier or additive use)**; USES (Uses)
(anticorrosive pigment in primers; metal sheet having Cr-free matte coating with good corrosion and acid resistance)

RN 7779-90-0 HCAPLUS
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 23 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 2000:247305 HCAPLUS
DN 132:295206
TI Chromium-free pre-coated metal plates with high coating **adhesion** and corrosion resistance
IN Furukawa, Hiroyasu; Takahashi, Akira; Ueda, Kohei; Nomura, Hiromasa; Kanai, Hiroshi
PA Nippon Steel Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 26 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B05D007-14
ICS C09D175-04; C23F011-00; C08G018-80
CC 42-10 (Coatings, Inks, and Related Products)
Section cross-reference(s): **55**
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000107686	A2	20000418	JP 1998-281199	19981002

AB Title plates consist of metal plates, silane coupler-contg. **aq.** resin primers, bottom coatings, and colored top coatings in which the bottom coatings prepd. from compns. contg. (A) .gtoreq.3 functional group-contg. polyester-polyols, secondary OH-contg. epoxy resin/lactone or alkylene oxide adducts, and blocked polyisocyanates or NCO-terminated prepolymers and (B) compds. relesing PO4-3 and compds. releasing VO4-3 ions in the presence of **water** and O. A **galvanized** steel plate was primed with an **aq.** compn. contg. AP 1058, Hytec S 7024, and .gamma.-(2-aminoethyl)aminopropyltrimethoxysilane, baked, coated with a compn. contg. adipic acid (I)-hydrogenated **bisphenol** A-trimethylolpropane (II) copolymer, Placcel G 402, and Me Et ketoxime-blocked I-II-dipropylene glycol-ethylene glycol-1,3-bis(isocyanatomethyl)cyclohexanecopolymer, MgHPO4, Mn2O3.V2O5, and a catalyst, baked, topcoated with white FL 100HQ (polyester coating), and baked to form a plate showing good interlayer **adhesion**, flexural resistance (no cracks), and anticorrosion at cut and edge areas.
ST silane coupler **aq** primer steel; anticorrosion coating **adhesion** steel; polyester polyol epoxy resin adduct polyisocyanate coating steel
IT Coupling agents
(Cr-free precoated metal plates from **aq.** primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)
IT Coating materials
(anticorrosive; Cr-free precoated metal plates from **aq.** primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)
IT Polyurethanes, uses

RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(epoxy-polyester-, bottom coatings; Cr-free precoated metal plates from **aq**. primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)

IT Polyesters, uses
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(epoxy-polyurethane-, bottom coatings; Cr-free precoated metal plates from **aq**. primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)

IT Acrylic polymers, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(olefin-, primer; Cr-free precoated metal plates from **aq**. primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)

IT Corrosion inhibitors
(pigments; Cr-free precoated metal plates from **aq**. primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)

IT Epoxy resins, uses
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(polyester-polyurethane-, bottom coatings; Cr-free precoated metal plates from **aq**. primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)

IT Epoxy resins, uses
Polyurethanes, uses
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(primer; Cr-free precoated metal plates from **aq**. primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)

IT Polyesters, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(topcoats; Cr-free precoated metal plates from **aq**. primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)

IT 1305-62-0, Calcium hydroxide, uses 1305-78-8, Calcium oxide, uses 1310-65-2, Lithium hydroxide 13701-61-6
RL: **MOA (Modifier or additive use)**; USES (Uses)
(P and V composite modifiers, anticorrosive pigments; Cr-free precoated metal plates from **aq**. primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)

IT 1314-56-3, Phosphorus pentaoxide, uses 1314-62-1, Vanadium oxide (V2O5), uses 2466-09-3, Pyrophosphoric acid 7664-38-2, Orthophosphoric acid, uses 7757-86-0, Magnesium hydrogenphosphate 7757-87-1, Trimagnesium diphosphate 7757-93-9, Calcium hydrogenphosphate 7758-23-8, Calcium bis(dihydrogen phosphate) 7758-87-4, TriCalcium diphosphate **7779-90-0**, Zinc phosphate 10343-62-1, Metaphosphoric acid 13573-13-2, Magnesium vanadium oxide (MgV2O6) 14986-94-8, Manganese vanadium oxide (MnV2O6) 15469-60-0, Vanadium zinc oxide (V2Zn3O8) 15607-56-4, Cobalt vanadium oxide (CoV2O6) 53801-86-8, Calcium metaphosphate 138882-01-6, Manganese vanadium oxide (MnVO4) 154662-00-7, Calcium vanadium oxide (Ca0.5VO3) 256377-18-1, Calcium vanadium oxide (Ca1.5VO4) 264148-25-6
RL: **MOA (Modifier or additive use)**; USES (Uses)
(anticorrosive pigments; Cr-free precoated metal plates from **aq**. primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)

IT 264148-15-4P, Adipic acid-1,3-bis(isocyanatomethyl)cyclohexane-dipropylene glycol-ethylene glycol-hydrogenated **bisphenol** A-Placcel G

402-trimethylolpropane copolymer 264148-16-5P, Adipic acid-1,3-bis(isocyanatomethyl)cyclohexane-dimethyl isophthalate-dipropylene glycol-ethylene glycol-1,6-hexanediol-Placcel G 402-trimethylolpropane copolymer 264148-17-6P, Adipic acid-.alpha.,.omega.-diisocyanato-1,3-dimethylbenzene-dimethyl isophthalate-dipropylene glycol-ethylene glycol-1,6-hexanediol-Placcel G 402-trimethylolpropane copolymer 264148-18-7P, Dimethyl isophthalate-1,6-hexanediol-Placcel G 402-trimethylolpropane-Takenate D 160N copolymer 264148-19-8P 264148-20-1P 264148-21-2P, Bis(2-hydroxyethyl) terephthalate-Placcel G 402-sebacic acid-.alpha.,.alpha.,.alpha.,.alpha.-tetramethyl-m-xylylenediisocyanate-trimethylolpropane copolymer 264148-22-3P 264148-23-4P 264148-24-5P, Adipic acid-3-methyl-1,5-pentanediol-Placcel G 402-succinic acid-trimethylolpropane-Takenate D 160N copolymer
RL: IMF (Industrial manufacture); POF (Polymer in formulation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(bottom coatings; Cr-free precoated metal plates from **aq.** primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)

IT 75-79-6, Methyltrichlorosilane 1760-24-3 4420-74-0
RL: **MOA (Modifier or additive use)**; USES (Uses)
(coupler; Cr-free precoated metal plates from **aq.** primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)

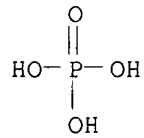
IT 1314-34-7, Vanadium oxide (V2O3)
RL: **MOA (Modifier or additive use)**; USES (Uses)
(mixt., anticorrosive pigments; Cr-free precoated metal plates from **aq.** primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)

IT 175832-28-7, Bon-Tighter HUX 320 204529-09-9, Polysol 8500 264148-14-3
RL: POF (Polymer in formulation); TEM (Technical or engineered material use); USES (Uses)
(primer; Cr-free precoated metal plates from **aq.** primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)

IT 264189-52-8, FL 100HQ
RL: TEM (Technical or engineered material use); USES (Uses)
(topcoats; Cr-free precoated metal plates from **aq.** primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)

IT **7779-90-0**, Zinc phosphate
RL: **MOA (Modifier or additive use)**; USES (Uses)
(anticorrosive pigments; Cr-free precoated metal plates from **aq** . primers and epoxy-polyester-polyurethane bottom coats and colored topcoats)

RN 7779-90-0 HCAPLUS
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 24 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 2000:180957 HCAPLUS

DN 132:225512
TI Zinc alloy-coated steel sheets with excellent heat resistance, heating-discoloration resistance, and corrosion resistance
IN Ishizuka, Kiyokazu
PA Nippon Steel Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B05D007-14
ICS B32B015-08
CC 55-6 (Ferrous Metals and Alloys)
Section cross-reference(s): 73
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2000079370	A2	20000321	JP 1998-253395	19980908

AB The steel sheets have a 1st coating of a Zn alloy and 2-2 g/m2 2nd coating prepd. by application of an **aq.** soln. contg. 10-100 parts colloidal **silica** to 100 parts Mg(H2PO4)2 and drying of it. The application soln. optionally contains 5-20 parts **aq.** resin (e.g., nonionic emulsion or dispersion). The steel sheets may have a color layer (e.g., by blackening treatment or **Zn phosphate**-type chem. conversion treatment) between the 1st and 2nd coatings. Harmful Cr (VI) is not used in coating materials and process. The steel sheets are esp. useful for shrink bands for cathode-ray tubes or stoves.

ST zinc alloy coated steel sheet heat corrosion resistant; magnesium biphosphate colloidal **silica** coating steel; cathode ray tube shrink band steel; stove zinc alloy coated steel sheet

IT Coating materials
(anticorrosive, heat-resistant; zinc alloy-coated steel sheets with inorg. top coating for excellent heat resistance and corrosion resistance)

IT Polymers, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(**aq.**, top coatings contg.; zinc alloy-coated steel sheets with inorg. top coating for excellent heat resistance and corrosion resistance)

IT Coating process
(blackening, for color interlayer; zinc alloy-coated steel sheets with inorg. top coating for excellent heat resistance and corrosion resistance)

IT Coating process
(**phosphating**, for color interlayer; **zinc** alloy-coated steel sheets with inorg. top coating for excellent heat resistance and corrosion resistance)

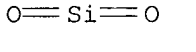
IT Cathode ray tubes
(shrink bands; zinc alloy-coated steel sheets with excellent heat resistance and corrosion resistance for shrink bands)

IT Stoves (appliances)
(zinc alloy-coated steel sheets with excellent heat resistance and corrosion resistance for stoves)

IT **Galvanized** steel
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(zinc alloy-coated steel sheets with inorg. top coating for excellent heat resistance and corrosion resistance)

IT Zinc alloy, base
RL: TEM (Technical or engineered material use); USES (Uses)

(coatings; zinc alloy-coated steel sheets with inorg. top coating for excellent heat resistance and corrosion resistance)
IT 52360-06-2
RL: TEM (Technical or engineered material use); USES (Uses)
(coatings; zinc alloy-coated steel sheets with inorg. top coating for excellent heat resistance and corrosion resistance)
IT **7631-86-9, Silica**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(colloidal, top coating component; zinc alloy-coated steel sheets with inorg. top coating for excellent heat resistance and corrosion resistance)
IT 13092-66-5, Magnesium **biphosphate**
RL: TEM (Technical or engineered material use); USES (Uses)
(top coating component; **zinc** alloy-coated steel sheets with inorg. top coating for excellent heat resistance and corrosion resistance)
IT 9002-88-4, Polyethylene 9010-77-9, Acrylic acid-ethylene copolymer
RL: **MOA (Modifier or additive use)**; USES (Uses)
(top coatings contg.; zinc alloy-coated steel sheets with inorg. top coating for excellent heat resistance and corrosion resistance)
IT 12597-69-2, Steel, processes
RL: PEP (Physical, engineering or chemical process); TEM (Technical or engineered material use); PROC (Process); USES (Uses)
(zinc alloy-coated steel sheets with inorg. top coating for excellent heat resistance and corrosion resistance)
IT **7631-86-9, Silica**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(colloidal, top coating component; zinc alloy-coated steel sheets with inorg. top coating for excellent heat resistance and corrosion resistance)
RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 25 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 2000:19163 HCAPLUS
DN 132:67160
TI Anticorrosive precoated steel sheet free from chromium ion
IN Yoshimi, Naoto; Ando, Satoshi; Sagiyama, Masaru
PA Nippon Kokan Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 20 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B05D007-14
ICS C23C022-00; C23C022-07
CC 55-6 (Ferrous **Metals** and Alloys)
Section cross-reference(s): 42
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2000000519	A2	20000107	JP 1998-181494	19980612

AB The sheet consists of a **galvanized** steel substrate or steel substrate plated with Al-based material and a surface layer made of a 99/1-1/99 mixt. of a **water**-dispersing or **water**-sol.
resin and a chelating agent comprising a polymer matrix and a

chelate-forming group. The sheet prepd. by a process without chromating process shows good corrosion inhibition despite the absence of Cr6+.

ST anticorrosive precoated steel sheet chromium ion; **galvanized** steel sheet anticorrosive resin coating; aluminum plated steel sheet anticorrosive coating; chelating agent polymer anticorrosive coating

IT Polyurethanes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(acrylic; anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Polyphosphoric acids
RL: **MOA (Modifier or additive use)**; USES (Uses)
(aluminum salts, lubricants; in anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Chelating agents
Electroplating
(anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT **Galvanized** steel
RL: PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Acrylic polymers, uses
Epoxy resins, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Coating materials
(anticorrosive; anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT **Phenolic** resins, uses
Polyamines
Polyoxyalkylenes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(chelating group-substituted; anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Molybdates
Phosphites
Polyphosphates
RL: **MOA (Modifier or additive use)**; USES (Uses)
(corrosion inhibitors; anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Amides, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(fatty, lubricants; in anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Corrosion inhibitors
Lubricants
(in anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Soaps
RL: **MOA (Modifier or additive use)**; USES (Uses)
(lubricants; anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Fluoropolymers, uses
Hydrocarbon waxes, uses

Polyoxyalkylenes, uses
Sulfides, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(lubricants; in anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Phosphates, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(molybdophosphate, corrosion inhibitors; anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Heteropoly acids
RL: **MOA (Modifier or additive use)**; USES (Uses)
(molybdophosphates, corrosion inhibitors; anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Alkali metals, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(sulfates, lubricants; in anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Coating materials
(**water**-thinned; anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT Polyolefins
RL: **MOA (Modifier or additive use)**; USES (Uses)
(wax, lubricants; in anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT 9002-86-2D, PVC, chelating group-substituted 9002-88-4D, Polyethylene, chelating group-substituted 9002-89-5D, Poly(vinyl alcohol), chelating group-substituted 9002-98-6D, Aziridine homopolymer, chelating group-substituted 9003-70-7D, Divinylbenzene-styrene copolymer, chelating group-substituted 25322-68-3D, Polyethylene glycol, chelating group-substituted 75497-02-8, Voncoat R 3360 96352-52-2, Finetex ES 675 97794-61-1, Voncoat SFC 55 102641-36-1, Finetex ES 850 178966-33-1, Adeka Bon-tighter HUX 401 253131-15-6, Voncoat R 3385 253131-41-8, Voncoat CG 5060 253131-78-1, Adeka EM 0433
RL: TEM (Technical or engineered material use); USES (Uses)
(anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT 83-86-3, Phytic acid **7631-86-9**, **Silica**, uses
7664-38-2D, Phosphoric acid, esters 13598-36-2, Phosphonic acid
RL: **MOA (Modifier or additive use)**; USES (Uses)
(corrosion inhibitors; anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT **7779-90-0**, **Zinc phosphate** 7782-42-5, Graphite, uses 9002-84-0, Teflon MP 1100 10043-11-5, Boron nitride (BN), uses 10103-46-5, Calcium phosphate 11113-63-6, Graphite fluoride 14306-25-3, Sodium phytate **14332-59-3**, Zinc phosphite 35046-95-8, Magnesium phytate 37164-27-5, Manganese phosphite 37367-98-9, Calcium molybdate 56083-79-5 59246-95-6, Zinc phytate 61583-60-6, Zinc molybdate 65526-82-1, Magnesium zinc phosphite 106145-21-5 130638-76-5, Aluminum phosphomolybdate 225663-39-8 225663-96-7
RL: **MOA (Modifier or additive use)**; USES (Uses)
(lubricants; in anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

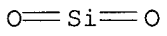
IT 12597-69-2, Steel, uses

RL: TEM (Technical or engineered material use); USES (Uses)
(sheet; anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

IT 7440-66-6, Zinc, uses 12609-49-3 52308-11-9 52360-06-2 58465-32-0 96539-23-0 115253-85-5 142240-64-0, Aluminum 5, magnesium 0.5, zinc 94
RL: TEM (Technical or engineered material use); USES (Uses)
(steel sheet coated with; anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

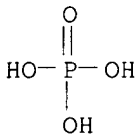
IT **7631-86-9, Silica**, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(corrosion inhibitors; anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



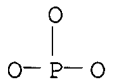
IT **7779-90-0, Zinc phosphate 14332-59-3**
, Zinc phosphite
RL: **MOA (Modifier or additive use)**; USES (Uses)
(lubricants; in anticorrosive precoated steel sheet free from chromium ion having polymer surface coating contg. polymeric chelating agents)

RN 7779-90-0 HCAPLUS
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

RN 14332-59-3 HCAPLUS
CN Phosphonic acid, zinc salt (1:1) (8CI, 9CI) (CA INDEX NAME)



Zn

*** FRAGMENT DIAGRAM IS INCOMPLETE ***

L65 ANSWER 26 OF 89 METADEX COPYRIGHT 2002 CSA
AN 2000(9):57-1474 METADEX
TI Powder coated hot-dip galvanized steel in corrosive environment.
AU Bjordal, M. (SINTEF Materials Technology); Axelsen, S.B. (SINTEF Materials

Technology); Knudsen, O.O. (SINTEF Materials Technology)
SO Assessing the Future of Coating Work (2000), 121-130, Numerical Data, Graphs, Photomicrographs, 10 ref.
Protective Coatings Europe. 2100 Wharton Street, Suite 310, Pittsburgh, PA 15203, USA
Conference: PCE 2000 Conference and Exhibition, Genoa, Italy, 8-10 Mar. 2000
DT Conference Article
CY United States
LA English
AB Duplex coating systems, with hot-dip zinc in combination with powder coating, has been exposed in accelerated corrosion tests and in field tests to document their ability to protect steel in corrosive environment. Two thick powder coatings applied directly on phosphated steel was also included as well as three systems with wet coatings either on steel or hot-dip galvanized steel. The powder coatings were applied industrially, thus representing actual quality on such coatings. Coated panels were exposed in two different cyclic exposure tests, one test submerged in distilled water, and mechanical testing. Panels are also being exposed on test sites in marine atmosphere and industrial atmosphere. The tests show that it is possible to obtain good corrosion protection of steel in corrosive environment with 90 mu m zinc, phosphate and 75 mu m polyester powder coating on top. The results indicate that polyester powder with primide hardener performs just as well in a duplex system as polyester with TGIC hardener. There were large differences between 'identical' systems applied by different companies. The process step being most important to obtain high quality seems to be pre-treatment of the zinc surface before powder coating. It is crucial that the phosphate layer covers the entire surface and has a fine platelet structure. The surface must be free from contamination before applying the powder coating. The corrosion protective properties of the phosphate layer have been demonstrated.
CC 57 Finishing; 35 Corrosion
CT Conference Paper; Galvanized steels: Coating; Hot dip galvanizing; Phosphating (coating); Powder coating; Polyesters: Coatings; Powder coatings: Corrosion; Organic coatings: Corrosion; Corrosion resistance: Coating effects

L65 ANSWER 27 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1999:728205 HCAPLUS
DN 131:340087
TI Surface-treated steel sheets showing high corrosion resistance and excellent workability, and preparation thereof
IN Ishizuka, Kiyokazu; Shindo, Hidetoshi
PA Nippon Steel Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C23C022-22
CC 55-6 (Ferrous **Metals** and Alloys)
Section cross-reference(s): **56**
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11315386	A2	19991116	JP 1998-124559	19980507

AB The steel sheets comprise, successively formed, Zn (alloy) platings, and 0.1-2.0 g/m2 of **water**-slightly sol. amorphous inorg. films contg. .gtoreq.1% of Mg. Zn phosphate conversion coating films may be formed between the steels and the inorg. films, whereas the total

thickness of the conversion coating films and the inorg. films is 0.1-2.0 g/m2. In prepn. of the steel sheets, the inorg. films are prepd. by applying **aq**. solns. contg. magnesium dihydrogen phosphate and .gtoreq.1% (to solids) of Mg on the steels, baking at 150-250.degree., and immediately quenching in **water**. The coatings are free from toxic Cr.

ST steel anticorrosive coating inorg amorphous film; zinc plated steel anticorrosive amorphous coating; phosphate zinc conversion coating steel anticorrosive

IT Films
(amorphous, inorg.; prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)

IT Coating materials
(anticorrosive, amorphous inorg.; prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)

IT **Silica** gel, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(coating soln. component; in prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)

IT Coating process
(conversion; prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)

IT **Galvanized** steel
RL: TEM (Technical or engineered material use); USES (Uses)
(electrogalvanized; prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)

IT **Galvanized** steel
RL: TEM (Technical or engineered material use); USES (Uses)
(prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)

IT 7664-38-2, Phosphoric acid, uses 13092-66-5, Magnesium dihydrogen phosphate
RL: TEM (Technical or engineered material use); USES (Uses)
(coating soln. component; in prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)

IT **7779-90-0**, Zinc phosphate
RL: TEM (Technical or engineered material use); USES (Uses)
(conversion films; prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)

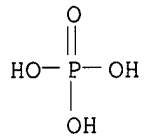
IT 12597-69-2, Steel, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)

IT **1314-23-4, Zirconia**, uses **1344-28-1, Aluminum oxide (Al2O3)**, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(sol, coating soln. component; in prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)

IT **7779-90-0**, Zinc phosphate
RL: TEM (Technical or engineered material use); USES (Uses)
(conversion films; prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)

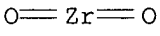
RN 7779-90-0 HCAPLUS

CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

IT **1314-23-4, Zirconia**, uses **1344-28-1**,
Aluminum oxide (Al_2O_3), uses
RL: TEM (Technical or engineered material use); USES (Uses)
(sol, coating soln. component; in prepn. of steel sheets successively coated with Zn (alloys) and anticorrosive amorphous inorg. films contg. Mg)
RN 1314-23-4 HCAPLUS
CN Zirconium oxide (ZrO_2) (8CI, 9CI) (CA INDEX NAME)



RN 1344-28-1 HCAPLUS
CN Aluminum oxide (Al_2O_3) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

L65 ANSWER 28 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1999:699394 HCAPLUS
DN 131:340081
TI **Galvanized** steel sheet with multilayer coating for painting having high corrosion resistance and resistance to secondary **adhesion** of **water**
IN Yamaji, Takafumi; Matsuzaki, Akira; Yamashita, Masaaki
PA Nippon Kokan Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C23C028-00
ICS C23C002-06; C23C022-07; C23C022-30
CC 55-6 (Ferrous **Metals** and Alloys)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 11302870	A2	19991102	JP 1998-109793	19980420

AB The conversion coating layer in a multilayer coating on a **galvanized** steel sheet contains a $Zn_3(PO_4)_2.cntdot.4H_2O$ layer at 0.1-1.5 g/m2 and a chromate layer on top of it. The chromate layer contains fumed **SiO2** with a primary particle size of 10-14 nm and 5-9 nm and a chromic acid compd. The **SiO2**/Cr ratio in the chromate layer is .gtoreq.3 and <6, and the content of Cr is 5-55 mg/m2.
ST fumed **silica** chromic acid chromate **zinc** **phosphate** coating steel; **galvanized** steel multilayer coating corrosion chromating
IT Coating materials
(anticorrosive; **galvanized** steel sheet with multilayer

coating for painting having high corrosion resistance and resistance to secondary **adhesion** of **water**)

IT Coating process
(conversion; **galvanized** steel sheet with multilayer coating for painting having high corrosion resistance and resistance to secondary **adhesion** of **water**)

IT **Galvanized** steel
RL: TEM (Technical or engineered material use); USES (Uses)
(**galvanized** steel sheet with multilayer coating for painting having high corrosion resistance and resistance to secondary **adhesion** of **water**)

IT Coating materials
(multilayer; **galvanized** steel sheet with multilayer coating for painting having high corrosion resistance and resistance to secondary **adhesion** of **water**)

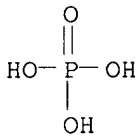
IT **7543-51-3, Zinc phosphate** tetrahydrate
RL: TEM (Technical or engineered material use); USES (Uses)
(coating contg.; **galvanized** steel sheet with multilayer coating for painting having high corrosion resistance and resistance to secondary **adhesion** of **water**)

IT **7631-86-9**, Fumed **silica**, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(colloidal; in chromate layer in **galvanized** steel sheet with multilayer coating for painting having high corrosion resistance and resistance to secondary **adhesion** of **water**)

IT 7738-94-5D, Chromic acid (H2CrO4), compds.
RL: TEM (Technical or engineered material use); USES (Uses)
(in chromate layer in **galvanized** steel sheet with multilayer coating for painting having high corrosion resistance and resistance to secondary **adhesion** of **water**)

IT **7543-51-3, Zinc phosphate** tetrahydrate
RL: TEM (Technical or engineered material use); USES (Uses)
(coating contg.; **galvanized** steel sheet with multilayer coating for painting having high corrosion resistance and resistance to secondary **adhesion** of **water**)

RN 7543-51-3 HCAPLUS
CN Phosphoric acid, zinc salt (2:3), tetrahydrate (8CI, 9CI) (CA INDEX NAME)

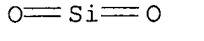


2 H_2O

3/2 Zn

IT **7631-86-9**, Fumed **silica**, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(colloidal; in chromate layer in **galvanized** steel sheet with multilayer coating for painting having high corrosion resistance and resistance to secondary **adhesion** of **water**)

RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 29 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1999:310996 HCAPLUS
DN 131:20322
TI Chromate film-free anticorrosive steel panels
IN Yoshimi, Naoto; Sasaki, Kenichi; Sugimoto, Yoshiharu; Sagiyama, Masaru
PA Nippon Kokan Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 18 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B05D007-14
ICS C23C022-00; C23C022-07
CC 42-10 (Coatings, Inks, and Related Products)
Section cross-reference(s): **55**
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 11128830	A2	19990518	JP 1997-314281	19971030

AB Title panels are prepd. by forming phosphoric acid- and/or **phosphate**-contg. polymeric chelating agent-based films on Zn- or Al-plated steel panels. A **galvanized** steel panel was coated with an **aq. compn.** contg. iminomethylenephosphoric acid group-contg. polyethylene to a 0.5-.mu.m thickness and dried at 150.degree. to form a film with good **adhesion** to the panel and anticorrosion (JIS Z 2371) over 48 h.
ST anticorrosion **phosphato** polymeric chelating agent coating steel
IT Sulfates, uses
RL: **MOA (Modifier or additive use)**; POF (Polymer in formulation); USES (Uses)
(alkali metal, lubricants; **phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)
IT Polyphosphoric acids
RL: **MOA (Modifier or additive use)**; POF (Polymer in formulation); USES (Uses)
(aluminum salts, corrosion inhibitor; **phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)
IT Coating materials
(anticorrosive; **phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)
IT Molybdates
Phosphates, uses
Phosphites
RL: **MOA (Modifier or additive use)**; POF (Polymer in formulation); USES (Uses)
(corrosion inhibitor; **phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)
IT Amides, uses
RL: **MOA (Modifier or additive use)**; POF (Polymer in formulation); USES (Uses)
(fatty, lubricants; **phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)

IT Polyoxyalkylenes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(iminomethylenephosphoric acid group-contg.; **phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)
IT Fluoropolymers, uses
Polyoxyalkylenes, uses
Soaps
Sulfides, uses
RL: **MOA (Modifier or additive use)**; POF (Polymer in formulation); USES (Uses)
(lubricants; **phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)
IT Acrylic polymers, uses
Epoxy resins, uses
Phenolic resins, uses
Polyamines
RL: TEM (Technical or engineered material use); USES (Uses)
(**phosphato** group-contg.; **phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)
IT Chelating agents
Corrosion inhibitors
(**phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)
IT **Galvanized** steel
RL: MSC (Miscellaneous)
(**phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)
IT Vinyl compounds, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polymers, **phosphato** group-contg.; **phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)
IT Lubricants
(solid; **phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)
IT 83-86-3, Phytic acid **7779-90-0, Zinc phosphate**
10103-46-5, Calcium **phosphate** 13598-36-2, Phosphonic acid
14306-25-3, Sodium phytate 14332-25-3 **14332-59-3, Zinc** phosphite 35046-95-8, Magnesium phytate 37164-27-5, Manganese phosphite 37367-98-9, Calcium molybdate 56083-79-5, Stannous phytate
59246-95-6, **Zinc** phytate 61583-60-6, **Zinc** molybdate
65526-82-1 107534-28-1 122493-85-0, Aluminum molybdenum oxide **phosphate** ($AlMo_{11}O_{26}(PO_4)$) 161116-19-4 225663-96-7
RL: **MOA (Modifier or additive use)**; POF (Polymer in formulation); USES (Uses)
(corrosion inhibitor; **phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)
IT **7631-86-9, Silica**, miscellaneous
RL: MSC (Miscellaneous)
(in **zinc** platings; **phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)
IT 9002-88-4, Luvax 1151
RL: **MOA (Modifier or additive use)**; POF (Polymer in formulation); USES (Uses)
(lubricants, Luvax 1151, Ceridust 3620; **phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)
IT 1317-33-5, Molybdenum disulfide, uses 7782-42-5, Graphite, uses

9002-84-0 10043-11-5, Boron nitride, uses 11113-63-6, Graphite fluoride
RL: **MOA (Modifier or additive use)**; POF (Polymer in formulation); USES (Uses)
(lubricants; **phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)

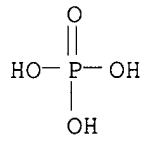
IT 11100-95-1 37345-61-2 52308-11-9 52360-06-2 96539-23-0 99653-45-9 118889-49-9 119412-76-9
RL: MSC (Miscellaneous)
(**phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)

IT 9002-86-2D, PVC, iminomethylenephosphoric acid group-contg. 9002-88-4D, Polyethylene, iminomethylenephosphoric acid group-contg. 9002-89-5D, Poly(vinyl alcohol), iminomethylenephosphoric acid group-contg. 9002-98-6D, iminomethylenephosphoric acid group-contg. 9003-01-4D, Poly(acrylic acid), imino or aminoalkylenephosphoric acid group-contg. 9003-70-7D, Divinylbenzene-styrene copolymer, iminomethylenephosphoric acid group-contg. 9005-25-8D, Starch, iminomethylenephosphoric acid group-contg. 25322-68-3D, Poly(ethylene glycol), iminomethylenephosphoric acid group-contg. 26913-06-4D, Poly[imino(1,2-ethanediyl)], iminomethylenephosphoric acid group-contg.
RL: TEM (Technical or engineered material use); USES (Uses)
(**phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)

IT 12597-69-2, Steel, miscellaneous
RL: MSC (Miscellaneous)
(plated; **phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)

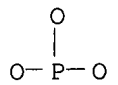
IT **7779-90-0, Zinc phosphate 14332-59-3**
, **Zinc** phosphite
RL: **MOA (Modifier or additive use)**; POF (Polymer in formulation); USES (Uses)
(corrosion inhibitor; **phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)

RN 7779-90-0 HCAPLUS
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



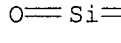
3/2 Zn

RN 14332-59-3 HCAPLUS
CN Phosphonic acid, zinc salt (1:1) (8CI, 9CI) (CA INDEX NAME)



*** FRAGMENT DIAGRAM IS INCOMPLETE ***

IT **7631-86-9, Silica**, miscellaneous
RL: MSC (Miscellaneous)
(in **zinc** platings; **phosphato** polymeric chelating agent-based coatings on Zn- or Al-plated steel for anticorrosion)
RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 30 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1997:619116 HCAPLUS
DN 127:309878
TI Chromium-free anticorrosive finishing **composition** for metal surface
IN Odajima, Toshio; Shimizu, Yoshiaki
PA Toyobo Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C23C022-07
ICS C23C028-00
CC 55-6 (Ferrous **Metals** and Alloys)
Section cross-reference(s): 42
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09241856	A2	19970916	JP 1996-46260	19960304

AB The **compn.** contg. an OH-contg. org. resin, H2PO3, and a **phosphate**-type compd. contg. Cu, Co, Fe, Mn, Sn, V, Mg, Ba, Al, Ca, Sr, Nb, Y, and/or Zn forms a film on the metal surface, which shows prevention of peeling off after impregnated in boiling **water** for 30 min in case of applying on **galvanized** steel plate. The environment-friendly **compn.** shows improved **adhesion** to metal.
ST chromium free anticorrosive coating metal substrate; hydroxy contg org resin coating metal; phosphoric acid anticorrosive coating metal substrate; metal **phosphate** chromium free coating metal
IT Anticorrosive coatings
(chromium-free anticorrosive surface finishing compns. contg. hydroxy-contg. resin, phosphoric acid, and metal **phosphate** for metal surface)
IT **Galvanized** steel
RL: MSC (Miscellaneous)
(plate, substrate; chromium-free anticorrosive surface finishing compns. contg. hydroxy-contg. resin, phosphoric acid, and metal

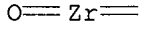
phosphate for metal surface)

IT 79-10-7DP, 2-Propenoic acid, reaction products with vinyl monomers and org. phosphorus-contg. monomer 79-41-4DP, reaction products with vinyl monomers and org. phosphorus-contg. monomer 80-62-6DP, reaction products with hydroxy-contg. vinyl monomers and org. phosphorus-contg. monomer 97-63-2DP, Ethyl methacrylate, reaction products with hydroxy-contg. vinyl monomers and org. phosphorus-contg. monomer 100-42-5DP, reaction products with hydroxy-contg. vinyl monomers and org. phosphorus-contg. monomer 106-91-2DP, reaction products with hydroxy-contg. vinyl monomers and org. phosphorus-contg. monomer 106-92-3DP, reaction products with hydroxy-contg. vinyl monomers and org. phosphorus-contg. monomer 141-32-2DP, reaction products with hydroxy-contg. vinyl monomers and org. phosphorus-contg. monomer 924-42-5DP, reaction products with hydroxy-contg. vinyl monomers and org. phosphorus-contg. monomer 2478-10-6DP, reaction products with vinyl monomers and org. phosphorus-contg. monomer 5919-74-4DP, 2,3-Dihydroxypropyl methacrylate, reaction products with vinyl monomers and org. phosphorus-contg. monomer 30585-49-0P, Butyl acrylate-2-hydroxyethyl acrylate-methacrylic acid copolymer 182439-87-8P 182439-89-0P 182439-90-3P 182439-91-4P 197454-70-9P 197454-71-0P
RL: IMF (Industrial manufacture); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(chromium-free anticorrosive surface finishing compns. contg. hydroxy-contg. resin, phosphoric acid, and metal **phosphate** for metal surface)

IT 1308-38-9, Chromium oxide (Cr2O3), uses 1309-37-1, Iron oxide (Fe2O3), uses 1309-48-4, Magnesium oxide, uses **1314-23-4**, **Zirconium oxide**, uses 1314-60-9, Antimony oxide (Sb2O5) 1317-61-9, Iron oxide (Fe3O4), uses **1344-28-1**, **Alumina**, uses **7631-86-9**, **Silica**, uses 7664-38-2, Phosphoric acid, uses 7757-86-0 **7779-90-0**, **Zinc phosphate** 7784-30-7, Aluminum **phosphate** 7798-23-4, Cupric **phosphate** 10103-46-5, Calcium **phosphate** 10124-54-6, Manganese **phosphate** 13847-18-2, Barium **phosphate** 13990-54-0, Yttrium **phosphate** 14414-90-5, Strontium **phosphate** 14417-93-7, Tin **phosphate** 14542-94-0, Vanadium **phosphate** 14940-41-1, Ferrous **phosphate** 17035-62-0 17409-91-5, Cobalt **phosphate** 18282-10-5, Tin oxide (SnO2)
RL: **MOA (Modifier or additive use)**; USES (Uses)
(chromium-free anticorrosive surface finishing compns. contg. hydroxy-contg. resin, phosphoric acid, and metal **phosphate** for metal surface)

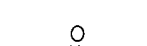
IT **1314-23-4**, **Zirconium oxide**, uses **1344-28-1**, **Alumina**, uses **7631-86-9**, **Silica**, uses **7779-90-0**, **Zinc phosphate**
RL: **MOA (Modifier or additive use)**; USES (Uses)
(chromium-free anticorrosive surface finishing compns. contg. hydroxy-contg. resin, phosphoric acid, and metal **phosphate** for metal surface)

RN 1314-23-4 HCAPLUS
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

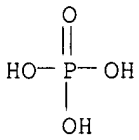


RN 1344-28-1 HCAPLUS
CN Aluminum oxide (Al2O3) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 7779-90-0 HCAPLUS
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



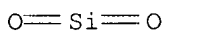
3/2 Zn

L65 ANSWER 31 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1997:421033 HCAPLUS
DN 127:52273
TI Coated and plated steel sheets having corrosion-resistant cutting edges
IN Ikishima, Kenji; Imai, Kazuhito
PA Sumitomo Metal Industries, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B32B015-08
ICS B32B015-08; B05D007-14; B32B027-18
CC 42-8 (Coatings, Inks, and Related Products)
Section cross-reference(s): 56
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09150479	A2	19970610	JP 1995-310184	19951129

AB The surface of plated steel sheets exhibit Cr elution from cutting edges per unit cutting edge length and hour .gtoreq.0.5-50 .mu.g/m-h and have (A) topcoatings and (B) undercoatings composed of polyesters with Tg -5.degree. to 40.degree. and av. mol. wt. .gtoreq.5000 and contg. Cr-contg. anticorrosive pigments. Thus, a **galvanized** steel plate was **Zn phosphate**-treated, coated with an undercoating contg. 8:2 a mixt. of a polyester, Cymel 370, 20% Sr chromate, and 2% **SiO2**, baked at 210.degree., coated with a polyester topcoating contg. 40% **TiO2**, and baked at 230.degree. to give test pieces showing Cr elution after soaking in **H2O** or 5% NaCl soln. 0.58 .mu.g/m-h, blistering 0 mm by JIS salt spray test (SST), no cracking by 180.degree.-bending, and cross-cut adhesion after boiling in **water** for 2 h .gtoreq.98/100.
ST polyester anticorrosive pigment undercoating plated steel; strontium chromate pigment polyester coating steel
IT Anticorrosive coatings
Topcoats (coatings)
(plated steel sheets coated with polyester coatings contg.

anticorrosive pigments and having corrosion-resistant cutting edges)
IT Aminoplasts
RL: **MOA (Modifier or additive use)**; USES (Uses)
(plated steel sheets coated with polyester coatings contg. anticorrosive pigments and having corrosion-resistant cutting edges)
IT Coatings
(undercoatings; plated steel sheets coated with polyester coatings contg. anticorrosive pigments and having corrosion-resistant cutting edges)
IT Polyesters, uses
RL: POF (Polymer in formulation); PRP (Properties); TEM (Technical or engineered material use); USES (Uses)
(undercoatings; plated steel sheets coated with polyester coatings contg. anticorrosive pigments and having corrosion-resistant cutting edges)
IT **7631-86-9, Silica**, uses 7789-06-2, Strontium chromate
9003-08-1, Cymel 370
RL: **MOA (Modifier or additive use)**; USES (Uses)
(plated steel sheets coated with polyester coatings contg. anticorrosive pigments and having corrosion-resistant cutting edges)
IT 12597-69-2, Steel, miscellaneous
RL: MSC (Miscellaneous)
(plated steel sheets coated with polyester coatings contg. anticorrosive pigments and having corrosion-resistant cutting edges)
IT **7631-86-9, Silica**, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(plated steel sheets coated with polyester coatings contg. anticorrosive pigments and having corrosion-resistant cutting edges)
RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 32 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1997:257281 HCAPLUS
DN 126:239700
TI Coating process and coated zinc (alloy)-plated steel panels therefrom
IN Ishihara, Yoshitaka; Okumura, Yoshiaki; Kaneko, Toshio; Tsutsui, Hiroaki
PA Nippon Paint Co Ltd, Japan
SO Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B05D007-14
ICS C09D005-00
CC 42-10 (Coatings, Inks, and Related Products)
Section cross-reference(s): 55
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 09038570	A2	19970210	JP 1995-211021	19950726

AB In a title process involving chem. treatment, spreading with bottom coatings, and covering with top coatings, the bottom coatings contain 100 parts resins and 1-100 parts MgO to ensure an edge anticorrosion of the coated panels. A Zn alloy-plated steel panel was treated with **Zn phosphate**, coated with a **compn.** contg. EPU 1000 90, Sumimal M 40S 10, and MgO 60 parts, baked, and top coated with a white

compn. to form a panel with good edge anticorrosion (**aq.** salt spraying, 1000 h) and blister resistance (5 h in boiling **water**).

ST edge anticorrosion steel coating magnesium oxide; blister resistance steel coating magnesium oxide

IT Epoxy resins, uses
Polyesters, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(coating binder; magnesium oxide-contg. resin bottom coatings for zinc (alloy)-plated steel for edge anticorrosion and blister resistance)

IT Polyurethanes, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(epoxy, coating binder; magnesium oxide-contg. resin bottom coatings for zinc (alloy)-plated steel for edge anticorrosion and blister resistance)

IT Anticorrosive coatings
(magnesium oxide-contg. resin bottom coatings for zinc (alloy)-plated steel for edge anticorrosion and blister resistance)

IT **Galvanized** steel
RL: MSC (Miscellaneous)
(magnesium oxide-contg. resin bottom coatings for zinc (alloy)-plated steel for edge anticorrosion and blister resistance)

IT Epoxy resins, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(polyurethane-, coating binder; magnesium oxide-contg. resin bottom coatings for zinc (alloy)-plated steel for edge anticorrosion and blister resistance)

IT 7440-66-6, Zinc, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(alloys, platings; magnesium oxide-contg. resin bottom coatings for zinc (alloy)-plated steel for edge anticorrosion and blister resistance)

IT 188497-53-2
RL: TEM (Technical or engineered material use); USES (Uses)
(coating binder; magnesium oxide-contg. resin bottom coatings for zinc (alloy)-plated steel for edge anticorrosion and blister resistance)

IT 1309-42-8, Magnesium hydroxide 1309-48-4, Magnesium oxide, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(magnesium oxide-contg. resin bottom coatings for zinc (alloy)-plated steel for edge anticorrosion and blister resistance)

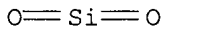
IT 37346-11-5
RL: TEM (Technical or engineered material use); USES (Uses)
(platings; magnesium oxide-contg. resin bottom coatings for zinc (alloy)-plated steel for edge anticorrosion and blister resistance)

IT **7631-86-9**, Aerosil 200, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(storage stability improver; magnesium oxide-contg. resin bottom coatings for zinc (alloy)-plated steel for edge anticorrosion and blister resistance)

IT **7631-86-9**, Aerosil 200, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(storage stability improver; magnesium oxide-contg. resin bottom coatings for zinc (alloy)-plated steel for edge anticorrosion and blister resistance)

RN 7631-86-9 HCAPLUS

CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 33 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1997:553335 HCAPLUS
DN 127:194058
TI Resin-containing phosphate bath for chromium-free coating of metal surfaces
IN Odashima, Hisao; Takahashi, Tomomi; Shimizu, Toshiyuki
PA Toyo Boseki Kabushiki Kaisha, Japan
SO Eur. Pat. Appl., 28 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM C23C022-06
ICS C23C022-07
CC 56-6 (Nonferrous Metals and Alloys)
Section cross-reference(s): 42
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 787830	A2	19970806	EP 1997-101530	19970131
	EP 787830	A3	20000405		
	R: DE, FR, GB, IT				
	JP 09208859	A2	19970812	JP 1996-16824	19960201
	JP 09241857	A2	19970916	JP 1996-47286	19960305
	US 6040054	A	20000321	US 1997-791077	19970129
PRAI	JP 1996-16824		19960201		
	JP 1996-47286		19960305		

AB The phosphating bath for coating of metals and/or alloys contains: (a) org. resin with hydroxyl group; (b) H3PO4; (c) metal ions and/or compds. with Cu, Co, Fe, Mn, Sn, V, Mg, Ba, Al, Ca, Sr, Nb, Y, and/or Zn; and optionally (d) colloids (as sol) or powders of **SiO2**, SnO2, Cr2O3, Fe2O3, Fe3O4, MgO, **ZrO2**, **Al2O3**, and/or Sb2O5. The org. resin is typically of acrylic, epoxy, or modified-epoxy type. The **aq**. phosphating soln. typically contains the resin at 100 g, H3PO4 at 2-60 g, a phosphate salt at 0.015-1.5 g-mol, and optionally the colloid or oxide powder at 3-300 g, and can be applied on a metal surface with drying for 0.1-3.0 g/m2 as a primer prior to painting. The dried phosphate coating on **galvanized** steel is stable after 30-min immersion in boiling-**water** bath. The phosphate coatings are optionally applied from the **aq**. resin-contg. phosphate bath as a primer, followed by a similar coating from the powder-contg. bath. Steel sheet electroplated with Zn-13.9% Ni alloy was coated for the dried (100.degree.) wt. gain of 0.75 g/m2 in the **aq**. bath contg. org. resin 60 g/L, H3PO4 15 g/L, Ba phosphate 0.8M, colloidal **SiO2** 15 g/L, and colloidal MgO 1 g/L, using the copolymer resin contg. 2-hydroxyethyl acrylate 15, Et methacrylate 60, Bu acrylate 40, methacrylic resin 50, and acrylic resin 35 wt. parts.

ST phosphating bath hydroxide resin coating primer; oxide powder phosphoric acid bath primer; **galvanized** steel phosphating bath primer

IT Acrylic polymers, uses
Epoxy resins, uses
Polyurethanes, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(coating bath with; resin-contg. **aq**. phosphate bath for chromium-free coating of metal surfaces)

IT **Galvanized** steel
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(coating of, with primer; resin-contg. **aq**. phosphate bath for chromium-free coating of metal surfaces)

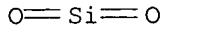
IT Phosphating
(primer; resin-contg. **aq.** phosphate bath for chromium-free coating of metal surfaces)
IT 7429-90-5D, Aluminum, salts 7439-89-6D, Iron, salts 7439-95-4D, Magnesium, salts 7439-96-5D, Manganese, salts 7440-03-1D, Niobium, salts 7440-24-6D, Strontium, salts 7440-31-5D, Tin, salts 7440-39-3D, Barium, salts 7440-48-4D, Cobalt, salts 7440-50-8D, Copper, salts 7440-62-2D, Vanadium, salts 7440-65-5D, Yttrium, salts 7440-70-2D, Calcium, salts 7664-38-2, Phosphoric acid, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(coating bath contg.; resin-contg. **aq.** phosphate bath for chromium-free coating of metal surfaces)
IT 7784-30-7, Aluminum phosphate 7798-23-4, Cupric phosphate 10103-46-5, Calcium phosphate 10124-54-6, Manganese phosphate 13092-66-5 13847-18-2, Barium phosphate 13990-54-0, Yttrium phosphate 14414-90-5, Strontium phosphate 14542-94-0, Vanadium phosphate 14940-41-1, Ferrous phosphate 15578-32-2, Stannous phosphate 17409-91-5, Cobalt phosphate 29766-44-7, Niobium phosphate
RL: **MOA (Modifier or additive use)**; USES (Uses)
(coating bath contg.; resin-contg. phosphate bath with colloidal oxide for coating of metal surfaces)
IT 7440-66-6, **Zinc**, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(coating, **phosphating** of; resin-contg. **aq.** phosphate bath for chromium-free coating of metal surfaces)
IT 1309-37-1, Iron oxide (Fe2O3), uses 1309-48-4, Magnesia, uses **1314-23-4**, **Zirconia**, uses 1314-60-9, Antimony pentoxide 1317-61-9, Iron oxide (Fe3O4), uses **1344-28-1**, **Alumina**, uses **7631-86-9**, **Silica**, uses 18282-10-5, Tin dioxide
RL: **MOA (Modifier or additive use)**; USES (Uses)
(colloidal; resin-contg. phosphate bath with colloidal oxide for coating of metal surfaces)
IT 12597-69-2, Steel, processes
RL: PEP (Physical, engineering or chemical process); PROC (Process)
(phosphating of; resin-contg. **aq.** phosphate bath for chromium-free coating of metal surfaces)
IT 79-10-7D, Acrylic acid, copolymers with 79-41-4D, Methacrylic acid, copolymers with 80-62-6D, Methyl methacrylate, copolymers with 100-42-5D, Styrene, copolymers with 106-91-2D, Glycidyl methacrylate, copolymers with 141-32-2D, Butyl acrylate, copolymers with
RL: **MOA (Modifier or additive use)**; USES (Uses)
(resins; resin-contg. phosphate bath with colloidal oxide for coating of metal surfaces)
IT **1314-23-4**, **Zirconia**, uses **1344-28-1**, **Alumina**, uses **7631-86-9**, **Silica**, uses
RL: **MOA (Modifier or additive use)**; USES (Uses)
(colloidal; resin-contg. phosphate bath with colloidal oxide for coating of metal surfaces)
RN 1314-23-4 HCAPLUS
CN Zirconium oxide (ZrO2) (8CI, 9CI) (CA INDEX NAME)

O=Zr=O

RN 1344-28-1 HCAPLUS
CN Aluminum oxide (Al2O3) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 34 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1998(5):35-760 METADEX
TI Effect of metallic substrate composition on the protective power of a water-proof epoxy primer in marine environment.
AU Beccaria, A.M. (CNR); Castello, G. (Universita di Genova); Zampella, M.G. (Universita di Genova); Poggi, G. (CNR)
SO Norwegian University of Science and Technology. Congress Department, Gloshaugen, Trondheim, N-7034, Norway. 1997. 381-386, Numerical Data, Graphs, 14 ref.
Conference: EUROCORR '97. Vol. I, Trondheim, Norway, 22-25 Sept. 1997
DT Conference Article
CY Norway
LA English
AB The protective power of a water-proof epoxy primer, environmentally friendly, on different substrates (mild steel, hot dip zinc coated steel, pure aluminium) was assessed in NaCl solutions, simulating the marine atmosphere environment. Water emulsion of an epoxy resin with a zinc phosphate dispersion as anti-corrosion pigment was painted on the metal surface to obtain a coating 45 mu m thick. Adhesion tests and FT/IR analyses were carried out in order to characterise the coating layer before the exposure in the corrosive solution, at 25 deg C. EIS tests were carried out on specimens pre-exposed for different times (0.5 to 360 h) to assess the protective power of the epoxy primer and its water uptake. Electrochemical and free corrosion tests show the influence of the metal substrate on the protective power of the primer which acts as corrosion inhibitor of steel and aluminium substrates, whereas it does not inhibit Zn corrosion, owing to the formation of Zn corrosion products spalling the organic layer since their lattice dimensions are too large with respect to the metallic matrix.
CC 35 Corrosion
CT Conference Paper; Carbon steels: Corrosion; Galvanized steels: Corrosion; Aluminum: Corrosion; Corrosion resistance: Coating effects; Primers (coatings): Corrosion; Marine environments
ET Cl*Na; NaCl; Na cp; cp; Cl cp; Zn

L65 ANSWER 35 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1998(1):35-27 METADEX
TI Comparative EIS study of pretreatment performance in coated metals.
AU Tang, Nie (Department of Materials Science and Engineering, University of Cincinnati,); van Ooij, Wim J. (tment of Materials Science and Engineering, University of Cincinnati,); Gorecki, George (America, Inc.,)
SO Progress in Organic Coatings (1 Apr. 1997) 30, (4), 255-263
ISSN: 0033-0655
DT Journal
CY Switzerland
LA English
AB Various coated metal samples with different pretreatments were investigated by electrochemical impedance spectroscopy (EIS). Variables were the substrate (cold-rolled steel and hot-dipped galvanized steel), phosphate system (iron and zinc phosphate), post rinse (chromate and silane/zirconium rinse) and paint systems. The corrosion performance was determined on the basis of coating degradation, water uptake and interface

delamination of the tested samples. The zinc phosphate performed better than iron phosphate on CRS. The silane/Zr rinse did not perform well in the CRS/iron-phosphate system. However, it showed a better performance than the chromate when used as a post rinse of zinc phosphate. Salt spray test (SST) and adhesion test results of the same samples are also reported in this paper and compared to the EIS data. The correlation among three test methods was poor.
CC 35 Corrosion; 57 Finishing
CT Journal Article; Steels: Corrosion; Galvanized steels: Corrosion; Delaminating: Coating effects; Moisture content: Coating effects; Paints; Phosphating (coating); Rinsing; Salt spray tests; Adhesion tests

L65 ANSWER 36 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1998(8):57-1150 METADEX
TI Advanced zinc phosphate conversion coatings.
AU Handsy, I.C. (US Army); Sugama, T. (Associated Universities)
SO Naval Surface Warfare Center-Carderock Division1997. 8.1-8.29, Photomicrographs, Graphs, Diffraction Patterns, 18 ref.
Conference: 1997 Tri-Service Conference on Corrosion. II, Wrightsville Beach, North Carolina, USA, 17-21 Nov. 1997
DT Conference Article
LA English
AB A SERDP-sponsored program aimed at developing environmentally benign zinc phosphate conversion coatings and their process technologies for the electrogalvanized steel (EGS). We succeeded in formulating an environmentally acceptable phosphate solution without Co- and Ni-related additives, and also in replacing a hexavalent Cr acid sealant applied over the zinc phosphate (ZhxPh) layers with a water-based polysiloxane sealers. The specific advantages of the newly developed ZnxPh coatings were as follows: (1) there was rapid growth of uniform, dense embryonic ZnxPh crystals on the EGS surfaces due to the creation of short-circuited cells with Mn acting as the cathode and the galvanized (zinc) coatings as the anode, (2) an excellent protection layer against corrosion was formed, extending the service life of zinc layers as galvanic sacrifice barriers, and (3) adhesion to the electro-deposited polymeric primer coating was improved because of the interaction between the siloxane sealer and primer. A full-scale demonstration to evaluate the reproducibility of this new coating technology on mini-sized automotive door panels made from EGS was carried out in collaboration with the Palnut Company (as industrial coating applicator) in New Jersey. All of the 150 mini-door panels were successfully coated with ZnxPh.
CC 57 Finishing
CT Conference Paper; Low carbon steels: Coating; Automotive components; Conversion coating; Phosphates: Coatings; Galvanized steels: Coating; Pollution abatement; Zinc compounds: Coatings; Electrodeposition; Sealing
ALI 1006 CCA: SCL
ET Co; Ni; Cr; Mn

L65 ANSWER 37 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1996:678579 HCAPLUS
DN 125:305939
TI Manufacture of black **galvanized** steel sheets
IN Watanabe, Koichi; Aoki, Tomohisa; Kitsutaka, Toshiharu
PA Nisshin Steel Co Ltd, Japan
SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C23C022-12

ICS B32B015-08; C23C022-78; C23C028-00
ICA C23C022-24
CC 55-6 (Ferrous **Metals** and Alloys)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 08218181	A2	19960827	JP 1995-47862	19950213

AB The process comprises debinding **galvanized** or Zn alloy-coated steel sheets, washing with **water**, treating with weakly alk. surface controlling solns. contg. 30-100 ppm Ti hydroxide particles, spraying with Zn phosphating baths contg. Ni ions 3.5-7.0 g/L and having total acid degree detn. by neutralization of **phenolphthalein** with 0.1 N NaOH at .gtoreq.65.degree. to give a coating layer contg.lic acid) (p(AA)) and water, the resulting electrochemical reaction led to the creation of short-circuited cells with cobalt acting as the cathode and the galvanized (zinc) coating as the anode. These cells accelerate the anodic dissolution of Zn, which then rapidly precipitates embryonic zinc phosphate tetrahydrate (hopeite) crystals on the EGS surfaces, resulting in their complete coverage with fully grown hopeite crystals after only 5 s immersion. The hopeite layers formed not only serve to protect the galvanized coatings against NaCl-induced corrosion, but also contribute significantly to improving adhesion to the polyurethane (PU) topcoating. The reasons for the latter improvement were due primarily to the following: (1) the interfacial chemical reaction between the p(AA) existing at the top surface of hopeite and the PU, and (2) the anchoring effects of the penetration of PU into the rough hopeite crystal layers.
CC 58 Metallic Coating
CT Journal Article; Low carbon steels: Coating; Galvanized steels: Coating; Phosphate coatings: Reactions (chemical); Anodic dissolution: Coating effects; Corrosion: Coating effects
ALI 1006 CCA: SCL
ET H*O*P*Zn; Zn3(PO4)2.4H2O; Zn cp; cp; P cp; O cp; H cp; H*O*P; H3PO4; Co*H*N*O; Co(NO3)2.6H2O; Co cp; N cp; Zn; Cl*Na; NaCl; Na cp; Cl cp

L65 ANSWER 39 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1995(8):57-1019 METADEX
TI Zinc phosphating.
AU Eriksson, M. (Oakite Products)
SO Met. Finish. (1995) 93, (4A), 39-40, 42-48, 51-56, Photomicrographs, Graphs
ISSN: 0026-0576
DT Journal
CY United States
LA English
AB Zinc phosphate is a crystalline conversion coating that is formed on a metal substrate utilizing the chemical reaction between metal ions that have been dissolved in mineral acids and then diluted with water to form the process solution. Zn phosphating processes rely on the basic pickling reaction that occurs on the metal substrate when the process solution comes in contact with the metal. The mineral acids normally used to dissolve the metal ions are nitric and phosphoric acids. Metals such as Zn, nickel, and manganese are dissolved depending on the process necessary. Several other metals can be dissolved to create specific characteristics. Nickel plays a major role in achieving an acceptable corrosion resistance of the coating as well as accelerating the process chemistry. More recent developments have created Ni-free processes that can compete with the Ni-containing processes in all areas. Accelerators are added to phosphating processes for specific reasons such as reaction speed, hydrogen elimination, and sludge formation control. Accelerators

can be used as single materials or can be mixed to achieve the most effective combination. Several materials can be used including nitrite/nitrate, cholorate, bromate, peroxide, and organic compounds such as sodium nitrobenzene sulfonate (SNBS). Other additives are used such as free and/or complex fluorides when, for example, hot-dipped galvanized and/or aluminum substrates are treated.

CC 57 Finishing

CT Journal Article; Galvanized steels: Coating; Aluminum: Coating; Phosphating (coating); Finishing baths

ET Zn; Ni

L65 ANSWER 40 OF 89 HCAPLUS COPYRIGHT 2002 ACS

AN 1994:489364 HCAPLUS

DN 121:89364

TI Coated aluminum alloy sheets suitable for phosphating in contact with **galvanized** steel

IN Toyose, Kikuro; Tsuruno, Akihiro; Fujimoto, Hideo

PA Kobe Steel Ltd, Japan

SO Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C23C018-52
ICS C23C022-78; C25D015-02

CC 56-6 (Nonferrous **Metals** and Alloys)
Section cross-reference(s): **55**

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 06088247	A2	19940329	JP 1992-264182	19920907

AB The Al alloy sheets are coated with a film of composite oxide of Fe, Zn, and Si at a coating amt. of 0.3-3 g/m2. The coating contains 1-10% Fe and 70-88% Zn, and the coated Al alloy sheets have a natural potential higher than -1000 mV in **aq**. H2PO4 (pH = 3).

ST oxide coated aluminum alloy sheet

IT **7631-86-9**, Silicon dioxide, uses
RL: USES (Uses)
(aluminum alloy sheets coated with composite oxide films contg., suitable for coating with zinc phosphate)

IT 12597-69-2, Steel, miscellaneous
RL: MSC (Miscellaneous)
(aluminum alloys used by contacting with, composite coatings for, for zinc phosphate treatment)

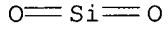
IT 1314-13-2, Zinc oxide (ZnO), properties 1344-09-8, **Water** glass 7705-08-0, Iron chloride (FeCl3), properties
RL: PRP (Properties)
(bath contg., coating, composite, for aluminum alloys for zinc phosphate treatment)

IT **7779-90-0**
RL: USES (Uses)
(coating of, on aluminum alloy sheets, precoating with composite oxide films in)

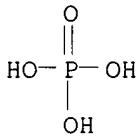
IT 7439-89-6, Iron, uses 7440-66-6, Zinc, uses
RL: USES (Uses)
(coatings contg., composite, on aluminum alloys, for zinc phosphate treatment)

IT 37202-63-4
RL: USES (Uses)
(coatings for, composite, iron-zinc-silicon oxide, for zinc phosphate treatment)

IT **7631-86-9**, Silicon dioxide, uses
RL: USES (Uses)
(aluminum alloy sheets coated with composite oxide films contg., suitable for coating with zinc phosphate)
RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



IT **7779-90-0**
RL: USES (Uses)
(coating of, on aluminum alloy sheets, precoating with composite oxide films in)
RN 7779-90-0 HCAPLUS
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)

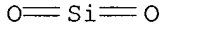


3/2 Zn

L65 ANSWER 41 OF 89 COMPENDEX COPYRIGHT 2002 EI
AN 1995(15):1774 COMPENDEX
TI New ways of wire treatment prior to slip drawing.
AU Nittel, Klaus-Dieter (Surface Technology Division of Chemetall GmbH, Frankfurt/Main, Ger)
SO Wire v 44 n 5 Oct 1994.p 303-308
CODEN: WIRDAK ISSN: 0043-5996
PY 1994
DT Journal
TC General Review; Experimental
LA English
AB All coatings are applied by immersion and, under certain conditions, by continuous-pass processes.All lubricants are dissolved or dispersed in **water** and are easily removable with alkaline, **aqueous** cleaners.However, **zinc phosphating** will remain an essential and, for many years to come, indispensible component of surface treatment prior to cold forming.
CC 535.2.2 Metal Forming Practice; 804.2 Inorganic Components; 813.2 Coating Materials; 539.2.1 Protection Methods; 454.2 Environmental Impact and Protection; 902.2 Codes and Standards
CT *Wire; Wire drawing; Metallic soaps; **Phosphate** coatings; **Galvanized** metal; Corrosion protection; Pollution control; Codes (standards); Surface treatment
ST Lubricant carriers; Wire treatment

L65 ANSWER 42 OF 89 METADEX without rinsing)
IT **7631-86-9, Silica**, uses
RL: USES (Uses)
(**aq. phosphating** bath contg. divalent metal and,

for anticorrosive primering of metals)
IT 1305-62-0, Calcium hydroxide, uses 3486-35-9, **Zinc** carbonate
7439-95-4, Magnesium, uses
RL: USES (Uses)
(**aq. phosphating** bath contg. **silica** and,
for anticorrosive primering of metals)
IT 7664-39-3, Hydrogen fluoride, uses 10043-35-3, Boric acid, uses
RL: USES (Uses)
(**aq. phosphating** bath contg., for anticorrosive
primering of metals)
IT 12597-69-2, Steel, uses 52308-11-9 109145-92-8
RL: USES (Uses)
(primers for, **phosphating** bath used without rinsing)
IT 7429-90-5, Aluminum, miscellaneous
RL: MSC (Miscellaneous)
(primers for, **phosphating** bath used without rinsing)
IT **7631-86-9**, **Silica**, uses
RL: USES (Uses)
(**aq. phosphating** bath contg. divalent metal and,
for anticorrosive primering of metals)
RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 44 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1994(5):57-554 METADEX
TI Method for Zinc Phosphating Metal Surface To Be Treated by the Cationic Electrodeposition Coating.
AU Jo, M. (Nippon Paint); Mino, Y. (Nippon Paint); Sobata, T. (Nippon Paint)
PI EP 564287A2 6 Oct. 1993
AD 1 Apr. 1993
DT Patent
LA English
AB By using a zinc phosphating solution, which does not contain a nickel ion, but contains 0.1-4 g/l of a cobalt ion, 0.1-3 g/l of a manganese ion, a phosphating accelerator, 200-500 mg/l of a simple fluoride compound in terms of HF concentration and a complex fluoride compound in a mole ratio of 0.01-0.5 relative to the simple fluoride compound, a zinc phosphate coating film suitable for cationic electrodeposition coating and superior in coating film adhesiveness and corrosion resistance, especially in warm brine resistance and scab resistance, is formed simultaneously on an iron-based, a zinc-based and an aluminum-based surface by using an identical solution.
CC 57 Finishing
CT Patent; Strip steel: Coating; Galvanized steels: Coating; Aluminum base alloys: Coating; Phosphating (coating); Corrosion resistance: Coating effects; Surface pretreatments; Salt water: Environment
ET Be; F*H; HF; H cp; cp; F cp

L65 ANSWER 45 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1994(5):57-553 METADEX
TI Method for Zinc Phosphating Metal Surface.
AU Jo, M. (Nippon Paint); Mino, Y. (Nippon Paint); Sobata, T. (Nippon Paint)
PI EP 564286A2 6 Oct. 1993
AD 1 Apr. 1993
DT Patent

CY Switzerland
LA English
AB A zinc phosphate coating film suitable for cationic electrodeposition coating and superior in both of coating film adhesion and corrosion resistance (especially, warm brine resistance and scab resistance) is formed by a conversion treatment of a metal surface using an acidic zinc phosphating solution which does not contain a nickel ion as an essential component. The conversion treatment is carried out by bringing metal surface into contact with solution containing a Zn ion of 0.1-2.0 g/l, a phosphate ion of 5-40 g/l, a lanthanum compound of 0.001-3 g/l in terms of a lanthanum metal, and a phosphating accelerator, thereby the zinc phosphate coating film is formed on the metal surface (e.g. a steel sheet, a zinc plated steel sheet or an aluminium alloy sheet).
CC 57 Finishing
CT Patent; Strip steel: Coating; Galvanized steels: Coating; Aluminum base alloys: Coating; Phosphating (coating); Corrosion resistance: Coating effects; Surface pretreatments; Salt water: Environment
ET Zn

L65 ANSWER 46 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1993(4):57-522 METADEX
TI Activator for Use in Phosphating Processes.
AU Rein, R. (Metallgesellschaft); Jentsch, D. (Metallgesellschaft); Wittel, K.-W. (Metallgesellschaft)
PI US 5160551 3 Nov. 1992
AD 17 Apr. 1991
DT Patent
LA English
AB The activating agent which is based on titanium (IV) phosphate and intended for use in the activation of metal surfaces before a zinc phosphating treatment contains one or more Cu compounds and has a Ti:Cu weight ratio of 1:100 to 60:1 and optionally contains in addition at least one of the components consisting of condensed phosphate, silicate, complexing agent, water-soluble organic polymer, thickening agent, and surfactant. It is used to prepare aqueous activating baths for activating Fe, steel, galvanized steel, Zn alloy-plated steel, Al-plated steel and Al before a zinc phosphating treatment, which baths contain 0.001-0.060 g/l Ti, 0.020-1.2 g/l orthophosphate (calculated as P2O5), and 0.001-0.1 g/l Cu and so much alkali that the bath has a pH value of 7-11, preferably of 7.5-10.
CC 57 Finishing
CT Patent; Activation; Steels: Surface finishing; Phosphating (coating)
ET Cu; Cu*Ti; Cu sy 2; sy 2; Ti sy 2; Ti:Cu; Cu doping; doped materials; Fe; Zn; Al; Ti; O*P; P2O5; P cp; cp; O cp

L65 ANSWER 47 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1992(9):57-1157 METADEX
TI Phosphatizing Compositions Containing Zinc Ions and a Polar or Non-Polar Solvent.
AU Fukushima I. (Nippon Dacro Shamrock); Okada, H. (Nippon Dacro Shamrock)
PI GB 2249108 16 Sept. 1992
AD 29 Apr. 1992
DT Patent
LA English
AB A phosphatizing composition comprises (a) 100 parts by weight of a first mixed solvent containing 100 parts by weight of a polar organic solvent having a boiling point of not < 0 deg C/760 mmHg and constituting at least 50 wt.% of the mixed solvent; (b) 0.0001-7 parts by weight of a phosphoric acid; (c) 0.01-5 parts by weight Zn ions; and (d) 0.01-5 parts by weight of a solubilizing agent. An alternative phosphatizing composition

comprises: (e) 100 parts by weight of a second mixed solvent containing 100 parts by weight of a nonpolar organic solvent having a boiling point of not < 0 deg C/760 mmHg, not < 0.5 parts by weight of a solubilizing solvent and not more than a homogeneous phase forming limit amount of water; (f) 0.0001-7 parts by weight of a phosphoric acid; (g) 0.001-3.5 parts by weight of Zn ions; and (h) 0.01-5 parts by weight of a solubilizing agent. The solubilizing solvent is a component which dissolves phosphoric acid, Zn, the solubilizing agent and water in the composition and exemplified compounds are polar organic solvents used in the first composition, e.g. t-butanol. The composition may also contain ions of one of more of Ni, Mn, Ca, Na, magnesium, Cu and cobalt and is used for modifying the surface of Fe, steel, galvanized iron, alloys of Fe, Al or Mg or other metallic materials.
CC 57 Finishing
CT Patent; Phosphating (coating); Finishing baths: Development
ET Hg; Zn; Ni; Mn; Ca; Na; Cu; Fe; Al; Mg

L65 ANSWER 48 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1994(6):57-770 METADEX
TI Composition and Method for Inhibiting Corrosion and/or Promoting Adhesion of a Metal Surface.
AU Lawson, R.J. (ICI)
PI EP 517356 9 Dec. 1992
AD 6 Apr. 1992
DT Patent
LA English
AB A composition comprises at least one compound which is a 2,6-bis hydroxyalkylamino methyl phenol. The composition is typically water-based and certain of the compounds are novel. The composition or the compound may be deposited onto a metal surface. The coated metal surface can have corrosion inhibiting and/or adhesion promoting characteristics. The invention relates especially to zinc surfaces or Zn-coated and phosphated steel surfaces.
CC 57 Finishing; 35 Corrosion
CT Patent; Zinc: Coating; Galvanized steels: Coating; Phosphate coatings; Protective coatings; Inhibitors; Corrosion prevention: Coating effects; Adhesion: Coating effects
ET Zn

L65 ANSWER 49 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1991:251527 HCAPLUS
DN 114:251527
TI Surface treating agents and surface treatment of **galvanized** steel strips
IN Yamamoto, Naotaka; Wada, Hideo
PA Nippon Paint Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C23C022-28
ICS C23C022-30
CC 55-6 (Ferrous **Metals** and Alloys)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 02190479	A2	19900726	JP 1989-10282	19890119

AB **Galvanized** steel strips are treated with a surface treating agent contg. partly sapond. polyvinyl acetate (sapon. degree .ltoreq.85, d.p. .ltoreq.500) 5-20, a Cr compd. 6-24 (as Cr), **SiO2** 10-40,

and a **waterprofing** agent 0.1-1 wt. part (as metal ion) at pH 0.5-2.5 to form a chromate-contg. coating. The surface-treated steel strips have high resistance to corrosion and blackening, and improved paint adhesion. Optionally, the steel strips are pretreated with Zn3(PO4)2.

ST **galvanized** steel surface treatment; chromate coating **galvanized** steel; polyvinyl acetate coating **galvanized** steel; **silica** coating **galvanized** steel

IT **Galvanized** iron and steel
RL: USES (Uses)
(coating of, with chromate-polyvinyl acetate-**silica** mixts.)

IT Chromates
RL: USES (Uses)
(coatings cncluding galvanized steel, is free of white spots and is suitable for electrocoating.

CC 57 Finishing

CT Patent; Galvanized steels: Coating; Phosphating (coating); Finishing baths

ET Zn; Mn

L65 ANSWER 51 OF 89 METADEX COPYRIGHT 2002 CSA

AN 1992(5):58-801 METADEX

TI Phosphating Process.[Phosphatierverfahren.].

AU Bittner, K. (Metallgesellschaft); Muller, G. (Metallgesellschaft); Rausch, W. (Metallgesellschaft); Wittel, K. (Metallgesellschaft)

PI EP 359296 21 Mar. 1990

AD 22 July 1989

DT Patent

CY Germany

LA German

AB A phosphating process galvanised for surfaces, in particular of galvanised steel, using aqueous Zn ions and phosphate ions, additional layer-building cations, and activator-containing phosphating solutions, is characterised in that the surface is contacted with an aqueous phosphating solution for at most 10 s, the solution containing 0.5-5.0 g/l Zn, 3-20 g/l phosphate, and 0.3-3 g/l magnesium, at a weight ratio of Mg:Zn of 0.5-10:1, and which has a weight ratio of Zn:phosphate in the range 0-1:8.

CC 58 Metallic Coating

CT Patent; Galvanized steels: Coating; Phosphating (coating); Finishing baths

ET Zn; Mg*Zn; Mg sy 2; sy 2; Zn sy 2; Mg:Zn; Zn doping; doped materials

L65 ANSWER 52 OF 89 HCAPLUS COPYRIGHT 2002 ACS

AN 1990:100791 HCAPLUS

DN 112:100791

TI **Water**-based dip coating materials

IN Takashio, Hideyoshi; Misawa, Masayuki; Kasukawa, Takahisa; Enokibata, Tamiyoshi

PA Kansai Paint Co., Ltd., Japan

SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C09D005-02
ICS C09D005-00

CC 42-7 (Coatings, Inks, and Related Products)

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 01247472	A2	19891003	JP 1988-75779	19880329

PI JP 01247472 A2 19891003 JP 1988-75779 19880329

AB Corrosion-resistant title coatings mainly comprise 100 parts resins and pigments including 10-25 parts carbon black having sp. oil absorption (A;

g/100 g) .gtoreq.90, with total oil absorption of all the pigments being 5000-25,000. Thus, 167 g 60% **aq.** epoxy ester resin soln. was mixed with carbon black (A 100) 18, SrCrO4 (A 23) 3, clay (A 60) 80, and finely powd. **silica** (A 300) 10, **water** 100, and ethylene glycol monoethyl ether 66 g, then dild. with 2:1 **water** /ethylene glycol mono-Bu ether to Ford Cup No. 4 viscosity (25.degree.) 60 s. **Zn phosphate**-treated **galvanized** steel sheets were dip coated in the **compn.** and baked to give specimens with smooth coatings, which showed good impact resistance and no corrosion (even at edges) after spraying with salt **water** for 240 h.

ST **water** sol resin dip coating; carbon black dip coating anticorrosive; oil absorption pigment dip coating

IT **Galvanized** iron and steel
RL: USES (Uses)
(anticorrosive **water**-thinned dip coatings for, contg. highly oil-absorbent pigments)

IT Carbon black, uses and miscellaneous
RL: USES (Uses)
(**water**-sol. polymer dip coatings contg. highly oil-absorbent, anticorrosive)

IT Clays, uses and miscellaneous
RL: USES (Uses)
(**water**-sol. polymer dip coatings contg., anticorrosive)

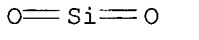
IT Coating materials
(anticorrosive, dip, **water**-thinned, contg. sol. resins and highly oil-absorbent pigments including carbon black)

IT **7631-86-9, Silica**, uses and miscellaneous 7789-06-2, Strontium chromate
RL: USES (Uses)
(**water**-sol. polymer dip coatings contg., anticorrosive)

IT **7631-86-9, Silica**, uses and miscellaneous
RL: USES (Uses)
(**water**-sol. polymer dip coatings contg., anticorrosive)

RN 7631-86-9 HCAPLUS

CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 53 OF 89 METADEX COPYRIGHT 2002 CSA

AN 1990(7):57-1040 METADEX

TI Process of Producing Phosphate Coatings.

AU Hauffe, D.; Kuhna, R.; Muller, G.; Rausch, W.; Schumichen, H.

CS Metallgesellschaft

SO Off. Gaz. ISSN: 0360-5132

PI US 4867853 19 Sept. 1989

AD 7 Oct. 1987

DT Patent

LA English

AB A process of producing a phosphate coating on a composite part consisting of steel and galvanized steel is developed. The process consists essentially of alkaline cleaning the part; rinsing the cleaned part with an aqueous rinsing solution which contains at least 0.2 g/l alkali borate, at least 0.1 g/l alkali silicate and at least 0.05 g/l alkali nitrite; and phosphatizing the rinsed part with a zinc phosphate solution.

CC 57 FINISHING

CT Steels: Coating; Galvanized steels: Coating; Phosphating (coating); Alkaline cleaning; Patents

L65 ANSWER 54 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1990(12):57-1724 METADEX
TI A Study on the Hopeite Crystal Deposited on Galvanized Steel.
AU Suzuki, M.; Hayashi, H.; Kiyomatsu, J.; Miyawaki, T.; Matsushima, Y.
CS Nihon Parkerizing
SO The Iron and Steel Institute of Japan. Keidanren Kaikan, 9-4 Ohtemachi 1-chome, Chiyoda-Ku, Tokyo 100, Japan. 1989. 222-229. Accession Number: 90(12):72-539
Conference: International Conference on Zinc and Zinc Alloy Coated Steel Sheet-GALVATECH '89, Tokyo, Japan, 5-7 Sept. 1989
DT Conference
LA English
AB Zinc phosphate coatings (hopeite crystal) are widely used as a pretreatment before painting on galvanized steel sheet. They are typically composite coatings containing Ni and Mn. Coatings containing Ni and Mn improve the adhesion and corrosion resistance after painting. However, if the Mn content exceeds a certain level, the problem of a corrosion resistance decrease during the warm salt water soak test arises, In this study, to determine the effect of additive metals on the resistance of the phosphate coating to solubility in an alkali, synthetic hopeites were prepared with various additive metals and these coatings were examined for solubility in the alkali. From X-ray diffraction, thermal analysis, etc., of the hopeites containing various additive metals, properties such as strain and dehydration behaviour of the crystals were induced. The effects of the additive metals were determined from the correlation between such properties and the alkali solubility. Spectra, Photomicrographs, Graphs. 6 ref.-AA
CC 57 FINISHING
CT Precoated strip: Coating; Galvanized steels: Coating; Phosphate coatings: Solubility; Alkalies: Solubility; Solubility: Impurity effects; Nickel: Trace elements; Manganese: Trace elements
ET Ni; Mn; In

L65 ANSWER 55 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1990(3):35-552 METADEX
TI Corrosion of Galvanised Steel and Carbon Steel in Deaerated Aqueous Solutions of Industrial Fertiliser Chemicals.
AU Smith, D.J.; van der Schijff, O.J.
CS Potchefstroom University
SO Br. Corros. J. (1989) 24, (3), 189-191
ISSN: 0007-0599
DT Journal
LA English
AB Corrosion rates of galvanised steel in contact with dilute solutions of various chemicals used as industrial fertilisers were determined by potentiodynamic measurement. Deaerated solutions containing up to 20 g l -1 of urea phosphate, phosphoric acid, monoammonium phosphate, zinc sulphate, urea ammonium nitrate, clear ammonium orthophosphate, ammonium sulphate, potassium chloride, ammonium orthophosphate, potassium sulphate, and urea were used in the tests. Uncoated C steel was tested in deaerated solutions of monoammonium phosphate, zinc sulphate, potassium sulphate, and ammonium sulphate. The results indicate operating concentrations for satisfactory performance of these metallic materials. 11 ref.-AA
CC 35 CORROSION
CT Galvanized steels: Corrosion; Carbon steels: Corrosion; Corrosion rate; Water: Environment; Fertilizers: Environment
ALI BS4360 Gr.43A CCA: SCL
ET C

L65 ANSWER 56 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1991(2):57-129 METADEX
TI New Paint Shop for a Legendary Car.
AU Fichtner, J.
CS Durr
SO IPE International Industrial and Production Engineering (Dec. 1989) (4), 66-67, 69
ISSN: 0343-334X
DT Journal
LA English
AB Maserati of Italy has planned to modernise its paint shop in Milan to comply with both the European and American standards since entering into a joint venture with Chrysler. The plant has been supplied by Durr GmbH with an overall system of paint distribution, water treatment and aqueous pollution control. It incorporates spraybooths of clean room concept and a camel back infrared oven. A four-coat paint system is adopted using zinc phosphate, high build cathodic primer, a two-layer top coat and a clear over-base. The car bodies are coated with high build cathodic electrocoat (approx 30 mu m) followed by oven curing and manual spraying.-B.C.
CC 57 FINISHING
CT Automotive bodies: Coating; Galvanized steels: Coating; Aluminum base alloys: Coating; Painting; Surface pretreatments; Pollution abatement

L65 ANSWER 57 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1989:9477 HCAPLUS
DN 110:9477
TI Acrylic polymer adhesive **compositions** for bonding metal and poly(vinyl fluoride)
IN Yuki, Kei; Takahashi, Kazutomo; Kodama, Kazuo; Kaneko, Kenjiro
PA Nittetsu Kenzai Kogyo K. K., Japan; Nippon Shokubai Kagaku Kogyo Co., Ltd.
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C09J003-16
ICS B32B015-08; C08J005-12; C09J003-14
CC 38-3 (Plastics Fabrication and Uses)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 63199783	A2	19880818	JP 1987-34021	19870217
JP 06060302	B4	19940810		

AB Corrosion-preventing adhesives for bonding Zn-plated steel or Al plates to poly(vinyl fluoride) films comprise an acrylic polymer contg. groups H2NZCO2 (Z = C2-3 alkylene), a dispersion of a corrosion-inhibiting pigment in an epoxy resin, and a silane coupling agent. Zn-plated steel was coated (6 .mu.m, dry) with an adhesive contg. a reaction product of Bu acrylate-Bu methacrylate-methacrylic acid-Me methacrylate copolymer and ethylenimine 100, a 58.7:12.9:28.4 Epikote 828-Zn3(PO4)2-PhMe mixt. 10, and H2N(CH2)3Si(OEt)3 1 part, dried 40 s at 200.degree., and pressed with a 38-.mu.m pigment-contg. poly(vinyl fluoride) film at 7 kg/cm to give a laminate with good adhesion and resistance to hot **water** and weathering.
ST acrylic adhesive anticorrosive; epoxy adhesive anticorrosive; ethylenimine acrylic adhesive anticorrosive; **zinc phosphate** adhesive anticorrosive; amino silane adhesive anticorrosive; polyvinyl fluoride adhesive anticorrosive; fluoropolymer film adhesive anticorrosive; corrosion prevention adhesive metal; adhesive anticorrosive fluoropolymer metal
IT Epoxy resins, uses and miscellaneous

RL: USES (Uses)
(adhesives contg., anticorrosive, for fluoropolymer film and metals)
IT Corrosion inhibitors
(adhesives contg., for poly(vinyl fluoride) film and metals)
IT Fluoropolymers
RL: USES (Uses)
(adhesives for metals and, anticorrosive)
IT **Galvanized** iron and steel
RL: USES (Uses)
(adhesives for poly(vinyl fluoride) film and, anticorrosive)
IT Coupling agents
(silanes, in adhesives for poly(vinyl fluoride) film and metals)
IT Adhesives
(anticorrosive, for poly(vinyl fluoride) film and metals)
IT 151-56-4D, Ethyleneimine, reaction products with acrylic polymers
7440-24-6, Strontium, uses and miscellaneous 7779-90-0, **Zinc phosphate 13463-67-7**, Titanium dioxide, uses and miscellaneous 25068-38-6, Epikote 828 26184-07-6D, Butyl acrylatebutyl methacrylate-methacrylic acidmethyl methacrylate copolymer, reaction products with ethylenimine 61583-60-6, Zinc molybdate
RL: USES (Uses)
(adhesives contg., anticorrosive, for fluoropolymer film and metals)
IT 7429-90-5, Aluminum, uses and miscellaneous 12597-69-2, Steel, uses and miscellaneous
RL: USES (Uses)
(adhesives for poly(vinyl fluoride) film and, anticorrosive)
IT 919-30-2, 3-Aminopropyltriethoxysilane 2530-83-8, 3-Glycidoxypropyltrimethoxysilane
RL: USES (Uses)
(coupling agent, in adhesives for fluoropolymer film and metals)
IT 24981-14-4, Poly(vinyl fluoride)
RL: USES (Uses)
(film, adhesives for metals and, anticorrosive)
IT **13463-67-7**, Titanium dioxide, uses and miscellaneous
RL: USES (Uses)
(adhesives contg., anticorrosive, for fluoropolymer film and metals)
RN 13463-67-7 HCAPLUS
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)

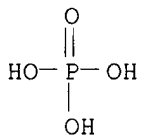
O=Ti=O

L65 ANSWER 58 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1989:99692 HCAPLUS
DN 110:99692
TI Oxide coating of **galvanized** steel strip for spot weldability
IN Suzuki, Shinichi; Kanamaru, Tatsuya; Hotta, Takashi
PA Nippon Steel Corp., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C23C030-00
ICS B23K011-16; C23C008-10; C23C022-00; C23C028-00; C25D011-00
CC 55-6 (Ferrous **Metals** and Alloys)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE

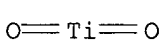
PI JP 63186883 A2 19880802 JP 1987-16137 19870128
AB The **galvanized** steel strip is coated with an oxide film (5-500 mg/m2) for spot weldability. The mol ratio of **water** and oxide contents in the film is <6, and an oil is applied on the coated film. Thus, an electrogalvanized steel strip was coated with a film contg. **water** and 100 mg/m2 of Cr2O3, ZnO, and Zn3(PO4)2 at the **water**-oxide mol ratio of 5.7. The coated strip was overcoated with an oil and spot welded for 4000 vs. 500-1000 spots by conventional means.
ST oxide coating **galvanized** steel weldability; chromium oxide coating **galvanized** steel; zinc oxide coating **galvanized** steel; phosphate zinc coating **galvanized** steel
IT 1307-96-6, Cobalt oxide (CoO), uses and miscellaneous 1308-38-9, Chromium oxide (Cr2O3), uses and miscellaneous 1313-13-9, Manganese dioxide, uses and miscellaneous 1314-13-2, Zinc oxide (ZnO), uses and miscellaneous **1344-28-1**, **Alumina**, uses and miscellaneous **7779-90-0**, Zinc phosphate (Zn3(PO4)2) 12036-01-0, **Zirconium oxide** (ZrO) **13463-67-7**, **Titania**, uses and miscellaneous
RL: USES (Uses)
(oxide film contg., on **galvanized** steel strip for spot weldability)
IT **1344-28-1**, **Alumina**, uses and miscellaneous **7779-90-0**, Zinc phosphate (Zn3(PO4)2) **13463-67-7**, **Titania**, uses and miscellaneous
RL: USES (Uses)
(oxide film contg., on **galvanized** steel strip for spot weldability)
RN 1344-28-1 HCAPLUS
CN Aluminum oxide (Al2O3) (8CI, 9CI) (CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***
RN 7779-90-0 HCAPLUS
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

RN 13463-67-7 HCAPLUS
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 59 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1988:496912 HCAPLUS
DN 109:96912
TI Formation of black coating on zinc- or zinc alloy-plated steels
IN Ataya, Takeshi; Yamashita, Masaaki; Kubota, Takahiro; Koizumi, Soei;

Okano, Yasuhiro
PA Nippon Kokan K. K., Japan; Nihon Parkerizing Co., Ltd.
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C23C022-50
CC 55-6 (Ferrous **Metals** and Alloys)
Section cross-reference(s): 38
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 63035784	A2	19880216	JP 1986-178854	19860731

AB A Zn or Zn alloy (esp. Zn- or Zn alloy-plated strip steel) is treated in an **aq**. soln. (pH 0.5-7) contg. 1.5-20 Bi and 9-100 g Ni, Fe, and/or Cr ion/L with metal ion: Bi ion mol ratio of 10-100 to form a black coating layer and is optionally coated with phosphate, 0.01-3-.mu. alkali silicate, chromate at 1-1000 mg/m2 (as Cr), and/or org. polymer over the black coating layer. The treatment results in increased spangle formation and corrosion resistance. Thus, a Zn-plated steel plate was sprayed for 5 s with an **aq**. soln. (pH 2, 50-60.degree.) contg. 3 Bi and 15 g Ni/L to form a black coating layer, and which was coated with a chromate (solid concn. 20 g/L, Cr3+:Cr6+ ratio 2:3, pH 2.5) at 50 mg/m2 (as Cr) and Li silicate (**SiO2** concn. 50 g/L) at 0.3 mg/m2 (as **SiO2**). The obtained steel plate was dark and had a superior finger print resistance, chromate coating adhesion, and corrosion resistance in a 5% brine-spray test to the same steel plate only treated with an **aq** . soln. contg. 1 Bi- and 15 g Ni/L.

ST coating **galvanized** steel; nickel bismuth coating **galvanized** steel; chromate coating **galvanized** steel; lithium silicate coating **galvanized** steel

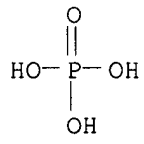
IT **Galvanized** iron and steel
RL: USES (Uses)
(coating soln. for, blackening)

IT 10361-44-1, Bismuth nitrate (Bi(NO3)3) 13138-45-9, Nickel nitrate (Ni(NO3)2)
RL: USES (Uses)
(coating soln. contg., blackening, for **galvanized** steel)

IT **7779-90-0**, Zinc phosphate 115988-33-5
RL: USES (Uses)
(coating with, on blackened **galvanized** steel)

IT **7779-90-0**, Zinc phosphate
RL: USES (Uses)
(coating with, on blackened **galvanized** steel)

RN 7779-90-0 HCAPLUS
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 60 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1988:426419 HCAPLUS
DN 109:26419
TI **Composition** and process for coating metallic parts and coated parts
IN Mosser, Marck F.; Fabiny, William J.
PA Sermatech International, Inc., USA
SO Eur. Pat. Appl., 13 pp.
CODEN: EPXXDW
DT Patent
LA English
IC ICM C23C022-74
ICS C09D005-08
CC 56-6 (Nonferrous Metals and Alloys)
Section cross-reference(s): 38
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 256908	A1	19880224	EP 1987-401677	19870716
	R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE				
	JP 63069984	A2	19880330	JP 1987-176962	19870715
PRAI	US 1986-886906		19860716		

AB An **aq**. acidic **phosphate** soln. (pH .ltoreq.4) for heat-curable coatings and for imparting long-term corrosion resistance esp. to active metal surfaces (Zn, Al, Cd, and ferrous and other metal parts coated with these metals, e.g. Zn-coated steel fasteners) includes a **water**-sol. acidic **phosphate**, a polymer resin, which is in soln. or is dispersed in the soln., and a **water**-sol. corrosion inhibitor. Possible corrosion inhibitors are is chromate, esp. dichromate, and molybdate, the molar ratio of the **phosphate** to chromate or molybdate ions is .gtoreq.2:1, and the wt. ratio of **phosphate**:resin is .apprx.0.2:1 to .apprx.25:1. Thus, 3 coating compns. were prepd. by adding 1, 5, and 15% poly(vinylidene fluoride) latex to **aq**. binder contg. 85% H3PO4 and MgCO3. Degreased **galvanized** steel and chromate conversion-coated 3003 H14 Al panels were coated (5 .mu.) with prepd. coating compns., dried at 175.degree.F for 15 min, and cured at 525.degree.F for 30 min. The coated steel and Al panels showed superior adhesion of the coating layer, flexibility in bending and impact tests, and corrosion resistance in 24-h 5% salt spray test to the samples coated with binder only. Less resin content was needed to improve phys. properties than for corrosion resistance.

ST coating **phosphate galvanized** steel; polyvinylidene fluoride **phosphate** coating; phosphoric acid **phosphate** coating; magnesium carbonate **phosphate** coating; corrosion inhibitor **phosphate** coating; aluminum conversion **phosphate** coating

IT **Galvanized** iron and steel
RL: PRP (Properties)
(coating of, with polymer-contg. acidic **phosphate** soln.)

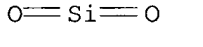
IT Coating materials
(**phosphates**, contg. polymers, for active alloys and metals)

IT Carbon black, uses and miscellaneous
RL: USES (Uses)
(phosphoric acid-based coating compns. contg. **aq**., for active alloys and metals)

IT 7664-38-2, Phosphoric acid, uses and miscellaneous 115165-85-0, Basic aluminum **zinc phosphate**
RL: USES (Uses)
(coating compns. contg. **aq**., for active alloys and metals)

IT 7429-90-5, Aluminum, uses and miscellaneous 7440-66-6, Zinc, uses and

miscellaneous
RL: USES (Uses)
(coating of castings of, with polymer-contg. acidic **phosphate** soln.)
IT 11146-15-9, AA 3003
RL: USES (Uses)
(coating of chromate conversion-coated panels of, with polymer-contg. acidic **phosphate** soln.)
IT **7631-86-9, Silica,** uses and miscellaneous
RL: USES (Uses)
(colloidal, phosphoric acid-based coating compns. contg., **aq**., for active alloys and metals)
IT 546-93-0, Magnesium carbonate 1309-48-4, Magnesium oxide, uses and miscellaneous 1314-13-2, Zinc oxide, uses and miscellaneous 2795-39-3, Fluorad FC 95 7738-94-5, Chromic acid (H2CrO4) 9004-35-7, Cellulose acetate 9004-62-0, Hydroxyethyl cellulose 9016-45-9 21645-51-2, Aluminum hydroxide, uses and miscellaneous 24937-79-9, Poly(vinylidene fluoride) 27119-07-9 37367-98-9, Calcium molybdate 68186-91-4, C.I. Pigment Black 28 78849-74-8, AMSCO 3077 115165-89-4, Troykyd 999
RL: USES (Uses)
(phosphoric acid-based coating compns. contg., for active alloys and metals)
IT **7631-86-9, Silica,** uses and miscellaneous
RL: USES (Uses)
(colloidal, phosphoric acid-based coating compns. contg., **aq**., for active alloys and metals)
RN 7631-86-9 HCAPLUS
CN Silica (7CI, 8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 61 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1988(8):57-874 METADEX
TI Process for Producing Phosphate Coatings on Metal Surfaces.
AU Beege, G.; Hauffe, D.; Mische, P.; Rausch, W.
CS Pyrene Chemical Services
PI GB 2195359 A 7 Apr. 1988
AD 18 Sept. 1987
DT Patent
LA English
AB A phosphate coating can be formed on surfaces of Al or its alloys and steel or galvanised steel by spray immersion with a zinc phosphate solution that contains accelerator and fluoride and that contains 0.4 to 0.8 g/l Zn, 10 to 20 g/l phosphate and an amount in mg/l of fluoride (Fel) as measured by a fluoride-sensitive electrode of from 80 to 220. The free acid content (FA) of the solution is held at a value FA = (0.5 to 1.0) + K, where K = (0.002 to 0.012) x Fel. (FA is the number of millilitres of 0.1N sodium hydroxide solution used in titrating 10 ml of bath sample diluted with 100 ml desalinated water to change from dimethyl yellow to weak yellow colouration).
CC 57 FINISHING
CT Aluminum: Coating; Steels: Coating; Phosphating (coating); Immersion coating; Spray coating
ET Al; Zn; K; N

L65 ANSWER 62 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1989(1):58-87 METADEX

TI Process for Obtaining Phosphate Coatings.
AU Hauffe, D.; Kuhna, R.; Muller, G.; Rausch, W.; Schumichen, H.
CS Metallgesellschaft
PI EP 264151 20 Apr. 1988
AD 3 Oct. 1987
DT Patent
LA German
AB In a process for the production of phosphate coatings on composite materials of steel and Zn coated Steel by alkaline cleaning, rinsing in an aqueous rinse bath and Zn phosphating, to avoid the formation of non-uniform coatings and flecks, a rinse bath is used which contains at least 0.1 g/l alkali silicate and at least 0.05 g/l alkali nitrite. Preferably the total amount of these constituents should not exceed 5 g/l. If it is intended to activate the composite parts before phosphating with titanium-phosphate-containing activating bath, it is necessary to add to the activating bath tetra-alkali phosphate in an amount of at least 1 g/l, preferably a maximum, of 4 g/l. The process is of particular advantage in the pre-treatment of composite components of steel and Zn coated steel (e.g. car body panels) painting, especially electropainting.
CC 58 METALLIC COATING
CT Galvanized steels: Coating; Phosphating (coating); Alkaline cleaning; Rinsing; Surface pretreatments; Surface activation; pH
ET Zn

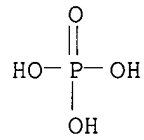
L65 ANSWER 63 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1988:188521 HCAPLUS
DN 108:188521
TI Pigmented anticorrosion coating for metals
IN Braun, Stanislav; Nedorost, Miroslav; Svoboda, Miroslav; Palffy, Alexander; Knapek, Bernard; Donat, Feodor; Halamova, Kvetoslava; Jirakova, Dagmar; Antl, Ladislav
PA Czech.
SO Czech., 5 pp.
CODEN: CZXXA9
DT Patent
LA Czech
IC ICM C09D005-08
CC 42-6 (Coatings, Inks, and Related Products)
Section cross-reference(s): **55**

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CS 243402	B1	19860612	CS 1984-7219	19840925

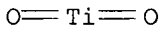
AB Primers for corrosion protection of metals (steel, **galvanized** Fe, Al, Al alloys) in atm. or **water** consist of multiphase anticorrosion inorg. pigments based on Fe2O3 or **TiO2** contg. 5-55% Zn3(PO4)2 (I) and .ltoreq.3% FePO4 or Ti3(PO4)4 3-82, alkyd resin binders 8-66, solvents 0.5-60, additives 0.01-22, and, optionally, fillers 1-45 parts. A typical primer for steel comprised red Fe pigment contg. 30% I and 0.18 g FePO4 5, microground talc 23, mixt. of C black and mica 11, mixt. of medium-oil-length alkyd and chloro rubber 24, xylene 23, 10% Pb naphthenate 2, and 2% Co naphthenate 2 parts.
ST anticorrosion primer pigment steel; iron phosphate pigment coating; titanium phosphate pigment coating; zinc phosphate pigment coating; alloy anticorrosive primer; aluminum anticorrosive primer; oxide iron titanium pigment
IT **Galvanized** iron and steel
RL: USES (Uses)
(anticorrosive primers for, pigments for)
IT Pigments

(iron and **titanium oxide**-based, for primers)
IT Corrosion inhibitors
(pigments contg. zinc and iron or titanium phosphates, for primers)
IT Coating materials
(anticorrosive, primers, contg. iron or **titanium oxide**)
IT Aluminum alloy, base
RL: USES (Uses)
(anticorrosive primers for, pigments for)
IT 7429-90-5, uses and miscellaneous
RL: USES (Uses)
(anticorrosive primers for, pigments for)
IT 7439-89-6
RL: USES (Uses)
(coating materials, anticorrosive, primers, contg. iron or **titanium oxide**)
IT **7779-90-0** 10045-86-0, Iron phosphate 15578-51-5
RL: USES (Uses)
(pigment contg., anticorrosive, for primers)
IT 1309-37-1, Iron oxide, uses and miscellaneous **13463-67-7**, uses and miscellaneous
RL: USES (Uses)
(pigment, contg. phosphate, anticorrosive, for primer)
IT **7779-90-0**
RL: USES (Uses)
(pigment contg., anticorrosive, for primers)
RN 7779-90-0 HCAPLUS
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

IT **13463-67-7**, uses and miscellaneous
RL: USES (Uses)
(pigment, contg. phosphate, anticorrosive, for primer)
RN 13463-67-7 HCAPLUS
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 64 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1988(3):57-260 METADEX
TI Method for Activating Metal Surfaces Prior to Zinc Phosphation.
AU Portz, H.; Opitz, R.
CS Gerhard Collardin
SO Off. Gaz. ISSN: 0360-5132
PI US 4707193 17 Nov. 1987
AD 24 Nov. 1986

DT Patent
LA English
AB A method for phosphating at least one metal surface comprised of Fe, steel, Zn, galvanized Fe or steel, Al, aluminized Fe or steel, or alloys of the foregoing is claimed. The method comprises: cleaning and rinsing the surface; subjecting the work piece to an activating bath; and then phosphating using a phosphating bath comprising Zn ions and phosphate ions in aqueous solution. The improvement comprises using as the activating bath an aqueous alkaline solution with a pH of approx 8-10 consisting essentially of: at least one water soluble alkali metal borate or alkaline earth metal borate; Ti ions present in up to 100 ppm; and phosphate ions present in up to 3000 ppm; wherein the weight ratio phosphate:borate (as B2O7) is 1:> 1.
CC 57 FINISHING
CT Steels: Surface finishing; Zinc: Surface finishing; Aluminum: Surface finishing; Phosphating (coating)
ET Fe; Zn; Al; Ti; B*O; B2O7; B cp; cp; O cp

L65 ANSWER 65 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1988(10):57-1128 METADEX
TI Process for Activating Metallic Surfaces Prior to Zinc Phosphating.
AU Portz, H.; Opitz, R.
CS Gerhard Collardin
PI EP 224190 3 June 1987
AD 19 Nov. 1986
DT Patent
LA German
AB The invention concerns a process for the activation of metal surfaces of Fe, steel, Zn, galvanised iron or steel, Al or aluminised iron or steel, between the steps of cleaning/rinsing and phosphating with phosphating baths containing Zn ions, using aqueous, alkaline solutions containing Ti ions and phosphate ions, that is characterised by the adjustment of the pH value of the activation solution to 8-10 and additionally including disodium tetraborate and/or other soluble alkali or alkaline earth metal borates in such amounts that the weight ratio of PO4: borate, with respect to B2O7 is 1:>1.
CC 57 FINISHING
CT Surface pretreatments; Surface activation; pH; Phosphating (coating); Ferrous alloys: Coating; Zinc: Coating; Aluminum: Coating
ET Fe; Zn; Al; Ti; O*P; PO4; P cp; cp; O cp; B*O; B2O7; B cp

L65 ANSWER 66 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1987(10):35-2613 METADEX
TI Field Corrosion Tests on Hot Dip Galvanized Steel Pipes-Assessment of Long Term Data.
AU Kruse, C.L.; Friehe, W.; Schulze, M.; Schwenk, W.
SO Werkst. Korros. (May 1987) 38, (5), 229-233
ISSN: 0043-2822
DT Journal
LA German
AB The degree of metal loss and its time dependence of hot dip galvanized steel pipes in flowing water were correlated with the water parameters. Good correlation was observed with CO2 concentration of the water. The higher the initial corrosion rate the higher is in many cases the decrease in corrosion rate with time. This is explained in terms of increased iron oxide content in the protective layers formed after the dissolution of a significant amount of zinc layer. Except for phosphates the other water parameters (chlorides, sulphates, nitrates and TOC) do not exhibit any influence. The favourable influence of the iron oxide rich protective layers on the corrosion rate may be lost in waters very rich in carbon

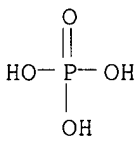
dioxide. 4 ref.-AA
CC 35 CORROSION
CT Hot dip galvanizing; Galvanized steels: Corrosion; Pipe: Corrosion; Corrosion tests; Corrosion rate; Water: Environment
ET C*O; CO2; C cp; cp; O cp

L65 ANSWER 67 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1987:556503 HCAPLUS
DN 107:156503
TI Primer **compositions** for metals
IN Takimoto, Masateru; Boda, Tamotsu; Nakano, Shinji; Yoshida, Juichi
PA Nippon Paint Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C09D003-72
ICS C09D003-58
CC 42-9 (Coatings, Inks, and Related Products)
Section cross-reference(s): **55**
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 61276861	A2	19861206	JP 1985-119205	19850531
JP 04075941	B4	19921202		

AB Corrosion-resistant **compn.** contain thermosetting resins (A) obtained from (B) an OH-contg. epoxy resin treated with a dicarboxylic acid and primary hydroxyalkyl-contg. secondary amines and then C5-11 lactones and (C) a blocked polyisocyanate at NCO/active H (in blocking agent) 5:(1-4) and primary OH group (in B)/free NCO (in C) (1-10):1, **phenolic** resol (D) at (A/D 95/5-70/30), 25-50% (based on solids) pigments contg. 50-100% Sr chromates and 0-50% Ca chromates, and 5-15% (based on solids) pH-adjusting pigments. Thus, a soln. of 475 parts Epo Tohto YD-014 (epoxy equiv. 950) in 95 parts xylene and 119 parts Cellusolve acetate was treated with 39.2 parts azelaic acid and 8.3 parts diethanolamine at 145.degree. for 6 h, cooled to 100.degree., treated with 105 parts Placcel M and 0.3 part SnCl2, and thinned with 209 parts xylene and 130 parts MEK to give component B. Cellosolve acetate 335, isophorone diisocyanate 222, and .epsilon.-caprolactam 113 parts were heated at 80.degree. to give component C (NCO equiv. 680). The component B was heated with 55.9 parts component C and 118 parts Cellosolve acetate at 100.degree. for 3 h and dild. with 102 parts iso-PrOH to give a thermosetting resin soln., 28 parts (solids) of which was mixed with BKS 316 (**phenolic** resol) 7 (solids), Sr chromate 40, Sicor ZNP/M 10, **TiO2** 15 parts, and cyclohexane. A Zn3(PO4)2-treated **galvanized** steel plate was coated with the mixt., baked at 220.degree. for 60 s to form a 5-.mu. primer, topped with Superlac DIFOX 97 (polyester), and baked to give a coated plate with excellent adhesion and resistance to boiling **water** and salt **water** spray.
ST anticorrosive primer modified epoxy resin; metal primer lactone modified epoxy; caprolactone modified epoxy resin primer; isocyanate modified epoxy resin prime; urethane modifier epoxy resin primer; thermosetting epoxy resin primer
IT Pigments
(inorg. compds., modified epoxy resin primers contg., anticorrosive, for metals)
IT Inorganic compounds
RL: USES (Uses)
(pigments, modified epoxy resin primers contg., anticorrosive, for metals)

IT **Galvanized** iron and steel
RL: USES (Uses)
(primers for, anticorrosive, modified epoxy resins as)
IT Coating materials
(anticorrosive, primers, modified epoxy resins, for metals)
IT Fatty acids, polymers
RL: USES (Uses)
(dimers, epoxy resins modified by, for anticorrosive primers, for metals)
IT 101484-09-7, BKS 316
RL: USES (Uses)
(modified epoxy resins blends, primers, anticorrosive, for metals)
IT 13939-25-8, Aluminum dihydrogen **tripolyphosphate**
RL: USES (Uses)
(pigments, K-White 82, modified epoxy resin primers contg., anticorrosive, for metals)
IT **7779-90-0, Zinc phosphate**
RL: USES (Uses)
(pigments, Sicor ZNP/M, modified epoxy resin primers contg., anticorrosive, for metals)
IT 471-34-1, Calcium carbonate, uses and miscellaneous 7789-06-2, Strontium chromate 13765-19-0, Calcium chromate
RL: USES (Uses)
(pigments, modified epoxy resin primers contg., anticorrosive, for metals)
IT 110586-17-9
RL: USES (Uses)
(primers, anticorrosive, for metals)
IT **7779-90-0, Zinc phosphate**
RL: USES (Uses)
(pigments, Sicor ZNP/M, modified epoxy resin primers contg., anticorrosive, for metals)
RN 7779-90-0 HCAPLUS
CN Phosphoric acid, zinc salt (2:3) (8CI, 9CI) (CA INDEX NAME)



3/2 Zn

L65 ANSWER 68 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1987:86320 HCAPLUS
DN 106:86320
TI Modified epoxy resin binders for coatings
IN Sato, Haruhiko; Umemoto, Hirotoshi
PA Nippon Paint Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C09D003-72
CC 42-9 (Coatings, Inks, and Related Products)

Section cross-reference(s): 55

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 61204279	A2	19860910	JP 1985-45275	19850307

AB Binders useful in metal primers contain thermosetting resins obtained from (A) an HO group-contg. epoxy resin treated with a dicarboxylic acid and then C5-11 .omega.-lactones and (B) a blocked polyisocyanate at NCO/active H (in blocking agent) 5:(1-4) and primary OH group (in A)/free NCO(in B) (1-10):1. Thus, a soln. from Epo Tohto YD-017 (epoxy equiv. 1960) 784, xylene 2468, and Cellosolve acetate 196 parts was treated with 25.1 parts azelaic acid and 13.3 parts diethanolamine at 140.degree. for 4 h, cooled to 100.degree., treated with 171.2 parts .epsilon.-caprolactone and 0.5 part SnCl2, heated at 140.degree. to >92% conversion, and thinned with 314 parts xylene and 245 parts MEK to give a component A. Cellosolve acetate 375, hexamethylene diisocyanate 224, and .epsilon.-caprolactam 151 parts were heated at 100.degree. for 3 h to give a component B. The component A was mixed with 75 parts component B and 263 parts xylene, heated at 100.degree. for 3 h and dild. with 244 parts MEK to give a thermosetting resin soln., which (250 parts) was mixed with **TiO2** 30, Sr chromate 25, and Cymel 303 10 parts, coated 8 .mu. thick on a **Zn phosphate**-treated **galvanized** iron plate, baked at 210.degree. for 45 s, topped 15-.mu. thick with a coil coating **compn.**, and baked at 210.degree. for 60 s to give a coated specimen with excellent adhesion and resistance to chems., boiling **water**, and salt **water** spray.

ST anticorrosive primer modified epoxy resin; dicarboxylic acid modified epoxy primer; caprolactone modified epoxy primer; isocyanate modified epoxy primer; azelaic modified epoxy primer; **galvanized** iron primer modified epoxy

IT Fatty acids, polymers
RL: USES (Uses)
(dimers, epoxy resins modified by, for anticorrosive primers, for metals)

IT **Galvanized** iron and steel
RL: USES (Uses)
(primers for, anticorrosive, modified epoxy resins as)

IT Coating materials
(anticorrosive, primers, modified epoxy resins, for metals)

IT 106926-80-1P 106926-81-2P, Azelaic acid-.epsilon.-caprolactam-.epsilon.-caprolactone-Epo Tohto Yd 014-formaldehyde-isophorone diisocyanate-melamine copolymer 106926-82-3P, Azelaic acid-.epsilon.-caprolactam-Epo Tohto YD 011-formaldehyde-hexamethylene diisocyanate-melamine-Placcel G 402 copolymer 106926-83-4P, Azelaic acid-.epsilon.-caprolactam-.epsilon.-caprolactone-Epo Tohto YD 017-hexamethylene diisocyanate-urea copolymer 106926-84-5P, Azelaic acid-.epsilon.-caprolactam-.epsilon.-caprolactone-Epo Tohto YD 017-hexamethylene diisocyanate-isophotone diisocyanate copolymer 106926-87-8P 106946-54-7P, Azelaic acid-.epsilon.-caprolactam-.epsilon.-caprolactone-Epro Tohto YD 017-hexamethylene diisocyanate copolymer
RL: PREP (Preparation)
(manuf. of, for anticorrosive primers, for metals)

IT 502-44-3D, polymer with epoxy resins and dimer acids and blocked polyisocyanates 70726-45-3D, Epo Tohto YD 014, polymer with dimer acids and caprolactone and blocked polyisocyanates
RL: USES (Uses)
(primers, anticorrosive, melamine resin-crosslinked, for metals)

L65 ANSWER 69 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1986:554801 HCAPLUS

DN 105:154801
TI Anticorrosive coating of **galvanized** steel
IN Sagane, Masahiko; Kume, Masafumi
PA Kansai Paint Co., Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 7 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM B05D007-14
ICS B05D001-36
CC 42-9 (Coatings, Inks, and Related Products)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 61136466	A2	19860624	JP 1984-257055	19841205

AB **Galvanized** steel was coated with a **water**-thinned **compn.** (forming a dry film with **water** absorption 0.3-20% at 50.degree.), topped with a **compn.** contg. anticorrosion pigment (giving **aq.** ext. with elec. cond. >100 .mu. .mu..OMEGA./cm), and if necessary coated with another **compn.** to give anticorrosive coatings. Thus, a **Zn phosphate** -treated **galvanized** steel panel was electrophoretically coated with a thermosetting polybutadiene-based anionic **compn.**, baked at 170.degree. for 30 min (to form 20 .mu. coating with **water** absorption 2.8%), coated with a **compn.** from Araldite 6097 60, Beckamine P-138 34, **TiO2** 40, BaSO4 20, and org. solvent 180 and 2 phr Zn chromate, baked at 160.degree. for 30 min (coating thickness 30 .mu.), coated with a white amino-acrylic paint, and baked at 140.degree. for 30 min. to give a coating with excellent salt **water** spray resistance.
ST polybutadiene anticorrosive coating **galvanized** steel; epoxy anticorrosive coating **galvanized** steel; zinc chromate anticorrosive coating
IT **Galvanized** iron and steel
RL: USES (Uses)
(anticorrosive coatings for, epoxy and alkyd resins contg. corrosion inhibitors for)
IT Coating materials
(anticorrosive, epoxy resins and alkyd resins, cong. corrosion inhibitors, for **galvanized** steel)
IT 25068-38-6
RL: TEM (Technical or engineered material use); USES (Uses)
(coatings, anticorrosive, contg. urea resin and corrosion inhibitors, for **galvanized** steel)
IT 9003-17-2D, anionic derivs.
RL: TEM (Technical or engineered material use); USES (Uses)
(coatings, electrophoretic, for **galvanized** steel)
IT 7789-06-2 10294-40-3 13530-65-9 13765-19-0
RL: USES (Uses)
(epoxy and alkyd coatings contg., anticorrosive, for **galvanized** steel)
IT 9011-05-6
RL: USES (Uses)
(epoxy coatings contg. corrosion inhibitors and, anticorrosive, for **galvanized** steel)

L65 ANSWER 70 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1987(10):58-1096 METADEX
TI Behavior of the Water of Crystallization of Zinc Phosphate and Its Relationship to Wet Adhesion of Paint on Electro-Galvanized Steel.

AU Yoshioka, K.; Yoshida, Y.; Watanabe, T.
SO Tetsu-to-Hagane (J. Iron Steel Inst. Jpn.) (June 1986) 72, (8), 1125-1132
ISSN: 0021-1575
DT Journal
LA Japanese
AB The behavior of the water of crystallization of zinc phosphate and its relationship to wet adhesion of paint on electro-galvanized steel has been investigated. A conversion coating of Zn3(PO4)2 4H2O under the paint film was dehydrated to yield Zn3(PO4)2 2H2O by baking the film for every amount of Ni and Mn in the coating. In the case of low contents of Ni and Mn in the coasting, Zn3(PO4)2 2H2O became rehydrated Zn3(PO4)2 4H2O by immersion in water in a wet adhesion test. However in the case of high contents of Ni and Mn, Zn3(PO4)2 2H2O was not rehydrated. The rehydration rate decreased with increasing contents of Ni and Mn in the coating. Therefore, it was found that the coating including high contents of Ni and Mn showed a very good wet adhesion. Moreover, the crystal of zinc phosphate coating including high contents of Ni and Mn was proved to be fine, dense and almost amorphous. 9 ref.-AA
CC 58 METALLIC COATING
CT Galvanized steels: Coating; Phosphating (coating); Painting; Adhesion: Alloying effects
ET O*P*Zn; Zn3(PO4)2; Zn cp; cp; P cp; O cp; H*O; H2O; 4H2O; is; H is; 4H; H cp; Ni; Mn

L65 ANSWER 71 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1987(6):57-531 METADEX
TI Paint Adhesion to TFS and Galvanized Steel Sheet.
AU Yoneno, M.
SO J. Met. Finish. Soc. Jpn. (1986) 37, (9), 497-502
ISSN: 0026-0614
DT Journal
LA Japanese
AB A review of adhesion and its test for TFS (Sn free steel) and galvanized steel is made. The existing adhesion tests according to the JIS K 5400 standard are: chess-board area test, bending test, shear separating test, and vertical tensile test. The adhesion decrease of can steel film was due to Sn oxidation, decomposition of penetrated oil, and water removing reaction of surface layer. For Zn plated steel, phosphated film was effective in improving adhesion since the surface area was greatly increased through phosphating. The inclusion of moisture at the interface of steel and coating film would result in poor adhesion. 59 ref.-X.S.
CC 57 FINISHING
CT Galvanized steels: Coating; Tin plate: Coating; Cans: Coating; Painting; Plastic coating; Phosphating (coating); Adhesive strength
ET Sn; K; Zn

L65 ANSWER 72 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1986(5):57-384 METADEX
TI Chromate-Free Post-Treatments.
AU Lindert, A.; Maurer, J.I.; Kent, G.
SO Prod. Finish. (Cincinnati) (Jan, 1986) 50, (4), 48-53
ISSN: 0032-9940
DT Journal
LA English
AB As a pretreatment to painting steel, a Zn or iron phosphate conversion coating is applied followed by a rinse. Better corrosion resistance is obtained if a post treatment is used. The post treatment has been a chromate based treatment. To prevent chromate water pollution, research was undertaken to develop a chromate-free treatment that would be applicable to both the Fe and Zn phosphates. The result was a compound

based on a polyhydroxystyrene derivative. Results of salt spray tests on cold rolled and on galvanized steels are compared for chromate-free and chromic/chromate post treatments on zinc phosphate and a paint system used in the appliance industry for detergent resistance. Scab test results are compared for the steels with automotive body paint.-H.B.C.

CC 57 FINISHING

CT Carbon steels: Coating; Galvanized steels: Coating; Phosphating (coating); Chromating; Painting

ET Zn; Fe

L65 ANSWER 73 OF 89 HCAPLUS COPYRIGHT 2002 ACS

AN 1985:506417 HCAPLUS

DN 103:106417

TI Urethane-modified polyester **compositions** for coatings

PA Dainippon Ink and Chemicals, Inc., Japan

SO Jpn. Kokai Tokkyo Koho, 9 pp.
CODEN: JKXXAF

DT Patent

LA Japanese

IC ICM C09D003-72

CC 42-8 (Coatings, Inks, and Related Products)

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 60099172	A2	19850603	JP 1983-205932	19831104
JP 04025316	B4	19920430		

AB The title compns. having good workability and forming coatings with excellent hardness and soiling resistance contain partially crosslinked urethane-modified polyesters and amino resins and/or blocked polyisocyanates. Thus, isophthalic acid 420, neopentyl glycol 153, trimethylolpropane 63, 1,6-hexanediol 250, and Bu2SnO 0.5 part were heated at 230.degree. for 2 h, and the reaction was continued in xylene to acid value 5. The reaction mixt. was allowed to cool, dild. with 500 parts Solvesso 100 and 500 parts cyclohexanone, heated to 80.degree., treated over 1 h with 200 parts hexamethylene diisocyanate, and kept at the same temp. for 4 h to obtain a modified polyester with Gardener viscosity T-U, acid value 0.5, OH value 60, and no.-av. mol.wt. 5200. A mixt. of this modified polyester 100, Super Beckamine L-117-60 4.78 and Solvesso 100 0.9 part was stirred at 80.degree. for 4 h to obtain a partially crosslinked resin soln. with viscosity T-U2, no.-av. mol.wt. 5400, and storability >3 mo at 25.degree.. This partially crosslinked resin soln. II 100, **TiO2** 55.5, Super Beckamine L-105-60 9.3, 10% p-MeC6H4SO3H soln. (in butyl Cellosolve) 0.1, and Polyflo S flow-control agent 0.04 part were ball-milled, and baked on **Zn phosphate**-treated **galvanized** steel at 220.degree. for 1 min to obtain 15-20 .mu.m coating with 60.degree. gloss 90%, pencil hardness 2H, and excellent flexibility, surface smoothness, and resistance to soiling, boiling **water**, and chems.

ST urethane modified polyester coating; soiling resistant polyester coating; polyisophthalate polyurethane coating; neopentyl glycol polyurethane coating; trimethylolpropane polyurethane coating; hexanediol polyurethane coating; hexanediisocyanate polyurethane coating; aminoplast crosslinker polyurethane coating; polyisocyanate crosslinker polyurethane coating

IT Crosslinking agents
(melamine resins and polyisocyanates, for urethane-modified polyester coatings)

IT Coating materials
(urethane-modified polyester, soiling-resistant)

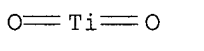
IT 91261-21-1
RL: **MOA (Modifier or additive use)**; USES (Uses)

(crosslinking agents, for urethane-modified polyester coatings)
IT 68900-92-5P 98160-67-9P 98160-68-0P 98160-69-1P
RL: PREP (Preparation)
(manuf. of, for soiling-resistant coatings)

L65 ANSWER 74 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1985:457504 HCAPLUS
DN 103:57504
TI Coated steel sheets
PA Sumitomo Metal Industries, Ltd., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC ICM C10M103-00
ICA C09D005-00
ICI C10N040-24, C10N050-02, C10N050-08
CC 55-6 (Ferrous Metals and Alloys)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 60053597	A2	19850327	JP 1983-161259	19830901

AB Steel sheets are coated with lubricants contg. 0.01-5.0% BN to increase workability, e.g., pressing. Thus, a **galvanized** steel sheet was treated with **Zn phosphate, water**-washed, chromate-sealed, dried, coated (10 .mu. thick) with a mixt. of polyester 40, hexamethylolmelamine [531-18-0] 10, **TiO2** 30, and SrCrO4 20 parts (methylisobutyl ketone as solvent) contg. 0.1% BN to increase press workability.
ST steel sheet coating boron nitride; boron nitride coating steel sheet; **galvanized** steel sheet workability
IT **Galvanized** iron and steel
RL: USES (Uses)
(coating of, with boron nitride-contg. **compn.**, for improved press workability)
IT Coating process
(of **galvanized** steel sheets, for improved press workability)
IT 531-18-0 7789-06-2 10043-11-5, uses and miscellaneous
13463-67-7, uses and miscellaneous
RL: USES (Uses)
(coating with **compn.** contg., of **galvanized** steel sheets for improved press workability)
IT **13463-67-7**, uses and miscellaneous
RL: USES (Uses)
(coating with **compn.** contg., of **galvanized** steel sheets for improved press workability)
RN 13463-67-7 HCAPLUS
CN Titanium oxide (TiO2) (8CI, 9CI) (CA INDEX NAME)



L65 ANSWER 75 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1986(3):57-253 METADEX
TI Paint Adhesion of Zinc and Zinc Alloy Plated Steel Sheets in Automative Body.
AU Wakano, S.; Sakoda, A.; Nishihara, M.
SO Sumitomo Met. (Aug. 1985) 37, (3), 325-332

ISSN: 0371-411X
DT Journal
LA Japanese
AB Paint adhesion of Zn and Zn alloy plated steel sheets with cathodic electropaint film as a primer paint has been investigated and a mechanism of paint adhesion loss is proposed. The addition of fluoride instead of chlorate and heavy metal ions to conventional immersion zinc phosphate solution greatly improves paint adhesion after the immersion test in warm deionized water. Phosphate crystals deposited from new types of zinc phosphate solution consist of hopeite as do those from conventional type solutions, but with a finer morphology and better alkali resistance. The fine morphology causes a smaller space for permeated water and less porosity. Also there may be a larger contract area between paint film and phosphate crystal as well as a stronger binding force between phosphate crystal and substrate. When comparing this process with a conventional process, the space for permeated water plays the most important role in improving paint adhesion. Furthermore, the results of SEM and electrochemical evaluation of phosphate crystal suggest the under film condition in the water immersion test to be mildly alkaline (p H 7-9) and to contain poorly dissolved oxygen. 14 ref.-AA
CC 57 FINISHING
CT Painting; Adhesion; Galvanized steels: Coating; Automotive bodies: Coating; Electropainting
ET Zn; H

L65 ANSWER 76 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1986(1):57-54 METADEX
TI Phosphate Conversion Coatings.
AU Kuehner, M.A.
SO Met. Finish. (Aug. 1985) 83, (8), 15-18
ISSN: 0026-0576
DT Journal
LA English
AB Due to the unique requirements of several "new" organic coatings (powder, water-borne, high solids, etc.), special attention must be paid to metal pre-treatment. The pre-paint phosphating of various metals (steel, galvanized and, to a smaller extent, Al), is discussed with emphasis on the specific requirements of new compliance finishes. The choice of pretreatment process is materially affected by the organic finish, the substrate, the end product, and the exposure conditions. Major categories here include: conversion coatings, iron phosphates, zinc phosphates, specific requirements of various compliance finishes (powder coating, water-borne paints, high-solids paints). An overview of several new products and processes is provided.-G.L.P.
CC 57 FINISHING
CT Carbon steels: Coating; Galvanized steels: Coating; Phosphating (coating); Powder coating; Painting; Conversion coating (process)
ET Al

L65 ANSWER 77 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1986(2):57-118 METADEX
TI New Method of Passivation of Zinc-Plated Sheets.
AU Jasovsky, F.Z.; Susinka, P.; Janok, J.; Banik, J.
SO Koroze Ochr. Mater. (1985) 29, (1), 10-12
ISSN: 0023-4095
DT Journal
LA Czech
AB In East Slovakian steelworks (VSZ Kosice) several laboratory tests of different passivation methods were carried out. The most appropriate process appeared to be phosphate-chromate passivation on the basis of

Synpasiv Zn 391, chromate conversion type coating. The coating is uniform and colorless with the Cr content up to 40 mg/m -2. Analysis confirmed that besided Cr, the layer contains also phosphor which is approx 20% of the mass of Cr. The deposited chromium hydroxide is equal to the concentration of chromium oxide. The results of corrosion tests in water vapor and in industrial atmosphere showed that the coating produced by the new method gives better protection than coatings produced by using the CrO3 solution even though they contain half as many ions of chrome. The Cr content is not a reliable indicator of quality of coatings. The higher protective effectiveness can be explained by higher uniformity and by formation of zinc phosphate.-V.T.B.

CC 57 FINISHING

CT Galvanized steels: Coating; Passivation; Phosphating (coating); Corrosion resistance; Protective coatings: Corrosion

ET Zn; Cr; Cr*O; CrO3; Cr cp; cp; O cp

L65 ANSWER 78 OF 89 METADEX COPYRIGHT 2002 CSA

AN 1984(12):57-910 METADEX

TI Treatment of Metal Prior to Coating With Zinc Phosphate.

AU Hacias, K.J.

CS Pyrene Chemical Services Ltd

PI GB 2136454 A 19 Sept. 1984

AD 29 Feb. 1984

DT Patent

LA English

AB A phosphate coating is formed on a galvanised or other metal surface by contacting the surface with an aqueous activating composition containing tetrasodium pyrophosphate and a reaction product of a titanium compound and a sodium phosphate and having a p H of 7 to 10 and then contacting the surface with an acidic phosphating solution containing phosphate and zinc. The resultant coating is a particularly good base for cathodically applied paint.

CC 57 FINISHING

CT Surface pretreatments; Phosphating (coating); Galvanized steels: Coating; pH

ET H

L65 ANSWER 79 OF 89 METADEX COPYRIGHT 2002 CSA

AN 1985(5):35-717 METADEX

TI A Contribution to the Study of the Corrosion Resistance of Precoated Steel Sheet.

AU Cottray, R.; Marguier, G.; Pichant, P.

SO Mater. Tech. (Paris) (Mar.-Apr. 1984) 72, (3-4), 111-115
ISSN: 0032-6895

DT Journal

LA French

AB The corrosion resistance of steel sheet coated by methods used in the car industry was studied and the corrosion resistance conferred on the steel by the coatings was compared. Three types of accelerated corrosion test were used on a pressed-steel car component: saline-fog test, exposure at a marine site and a corrosion cycle of a saline environment followed by high humidity and drying. The latter test was considered to be the best test for precoated steel. Three types of precoated steel were used: (i) Zincrometal' which is a zinc-rich binary coating; (ii) hot-galvanized steel coated on one side with 10 mu m and on the other with 2 mu m of Zn; (iii) electrolytically deposited Zn on one side of the steel. Three types of surface treatment were applied to the precoated steel followed by electrophoretic painting: (i) Zn phosphate and anaphoretic, (ii) Fe phosphate and cataphoretic, (iii) Zn phosphate and cataphoretic. The latter treatment gave significantly better corrosion resistance. The

corrosion at junctions between non-coated steel was minimised when one of the parts of the junction was precoated.-G.C.
CC 35 CORROSION
CT Precoated strip: Corrosion; Galvanized steels: Corrosion; Corrosion resistance; Protective coatings; Electrophoretic coating; Zincrometal; Salt water: Environment
ET Zn; Fe

L65 ANSWER 80 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1984(4):35-802 METADEX
TI Effect of Corrosion Behavior of Galvanized Steel Pipe in Warm Water.
AU Kruse, C.-L.
SO Editions CEBODOC. 2, rue Armand Stevart, B-4000, Liege, Belgium. 1983. 67-90. Accession Number: 84(4):72-259
Conference: Industrial Water Treatment and Conditioning, Liege, Belgium, 25-27 May 1983
DT Conference
LA German
AB Pipe specimens made of commercial-grade galvanized steel and Zn have been tested in comparison to pipe specimens having modified Zn coatings. The specimens were corroded in 11 test lines with warm water at approx 60 deg C and cold water with continuous and intermittent flow. The localized corrosion tendency is not determined by the amount of potential ennoblement, but rather by the inhibition of the cathode reaction on the surface layer formed, which can be read off the cathodic current density vs. potential curve. The tested materials with modified coatings showed poorer corrosion behavior in warm water than commercial Zn coatings. The phosphates used for the investigation induce an inhibition of the cathode reaction in Zn. A treatment of the water according to the Guldager process insures a strong inhibition of the cathode reaction both with Zn and especially with Zn-Fe alloy phases and induces an important improvement of the corrosion behavior of galvanized steel in warm water.-AA
CC 35 CORROSION
CT Galvanized steels: Corrosion; Pipe: Corrosion; Pitting (corrosion); Inhibition; Corrosion resistance: Composition effects; Corrosion potential
ET Zn; Fe*Zn; Fe sy 2; sy 2; Zn sy 2; Zn-Fe

L65 ANSWER 81 OF 89 COMPENDEX COPYRIGHT 2002 EI
AN 1985(8):110523 COMPENDEX
TI **ZINC PHOSPHATING** OF **GALVANIZED** STEEL.
AU Tupper, G.Lowell (Coral Chemical Co, Waukegan, IL, USA)
MT Finishing '83.
MO SME, Dearborn, MI, USA
ML Cincinnati, OH, USA
MD 11 Oct 1983-13 Oct 1983
SO SME Technical Paper (Series) FC Publ by SME, Dearborn, MI, USA FC83-641, 11p
CODEN: TPFCDA ISSN: 0161-1844
PY 1983
MN 06007
DT Conference Article
LA English
AB Methods of producing **galvanized** steel and the various grades and surface finishes commercially available are presented, with comments on the effects of passivation.The pretreatment process section discusses cleaning and conditioning, rinsing, deposition of the coating, post rinsing and drying.Comments are included on pollution aspects in addition to a discussion of test methods used to evaluate quality and potential durability.8 refs.
CC 545 Iron & Steel; 539 Metals Corrosion & Protection; 453 Water Pollution

CT *GALVANIZED METAL:Protective Coatings; WATER POLLUTION:Control
ST PASSIVATION; PRETREATMENT; RINSING; ZINC PHOSPHATING

L65 ANSWER 82 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1983:162549 HCAPLUS
DN 98:162549
TI Water-resistant polyester coatings
PA Mitsui Toatsu Chemicals, Inc., Japan
SO Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC C09D003-64; C08G063-12; C08G063-20
CC 42-8 (Coatings, Inks, and Related Products)
Section cross-reference(s): 55
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 57172963	A2	19821025	JP 1981-57993	19810417

AB The title coatings were formed from ethoxylated and propoxylated bisphenol A-based polyesters. For example, 400 parts polyester [85412-34-6] (no.-av. mol. wt. 20,000) from di-Me terephthalate 184, isophthalic acid 166, ethylene glycol 24.8, neopentyl glycol 104, and propoxylated bisphenol A (OH value 310) 217 parts and mixed with a 360:180:60 mixt. of Solvesso 150, cyclohexanone, and Cellosolve acetate to give a 40%-solids soln. (I). A compn. from I 212.5, Cymel 303 15.0, p-MeC6H4SO3H 0.3, and TiO2 100 parts was baked on Zn phosphate-treated galvanized steel at 260.degree. for 1 min to give a 15-.mu. coating with excellent water resistance.
ST bisphenol polyester coating water resistance; alkoxylated bisphenol polyester coating
IT Coating materials
(water-resistant, alkoxylated bisphenol A-based polyesters)
IT 85399-50-4 85401-92-9 85412-33-5 85412-34-6
RL: TEM (Technical or engineered material use); USES (Uses)
(coatings, water-resistant)

L65 ANSWER 83 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1983:73939 HCAPLUS
DN 98:73939
TI Cationic electrophoretic coating materials
PA Nippon Steel Corp., Japan; Nippon Paint Co., Ltd.; Mitsubishi Chemical Industries Co., Ltd.
SO Jpn. Kokai Tokkyo Koho, 10 pp.
CODEN: JKXXAF
DT Patent
LA Japanese
IC C25D013-20; C09D005-40; C25D003-56; C25D013-06
CC 42-7 (Coatings, Inks, and Related Products)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI JP 57134599	A2	19820819	JP 1981-19844	19810213
JP 60024194	B4	19850611		

AB Urethane polymers contg. OH, tertiary amino, and blocked isocyanate groups formed pinhole-free electrophoretic coatings on Zn alloy-plated steel (as cathode). Thus, 125 g diphenylmethane 4,4'-diisocyanate (I) was treated with 100 g polypropylene glycol (mol. wt. 400) in 96 g Me2CO at 60.degree., stirred 3 h at 60.degree., cooled to 40.degree., treated with

75 g triethanolamine in 32 g Me2CO, stirred 2 h at 50-60.degree., treated with adduct of 125 g I and 65 g 2-ethylhexanol in 81 g Me2CO at room temp., stirred 1 h at 50.degree., thinned with 209 g EtOCH2CH2OH, and stripped of Me2CO in vacuo to give a soln. of copolymer (II). A **compn**. of the II soln. 79, 50% lactic acid soln. 6.6, **TiO2** 43, kaolin 73, carbon black 2.4, Pb silicate 8.4, and **H2O** 112 parts was milled to give pigment paste. A **compn**. of the II soln. 413, Bu2Sn dilaurate 5, 50% lactic acid 34, and **H2O** 473 parts was mixed with 197 parts of the above pigment paste, thinned with 1000 parts **H2O** (pH 5.3), electrophoretically applied to a 12:88 Fe-Zn alloy-plated and **Zn phosphate**-treated steel plate (cathode) at 280 V, washed, and baked 20 min at 180.degree. to form a 20-.mu. coating having no corrosion after 672 h of salt-**water** -spray test (IIS Z 2371).

ST urethane polymer electrophoretic coating; **galvanized** steel electrophoretic coating; cationic urethane polymer coating; blocked isocyanate group polymer; hydroxy group polymer; tertiary amino group polymer; anticorrosive coating **galvanized** steel

IT Coating materials
(anticorrosive, electrophoretic, cationic urethane polymers, pinhole-free, for **galvanized** steel)

IT 104-76-7D, reaction products with diphenylmethane diisocyanate-polypropylene glycol-triethanolamine copolymer 84563-03-1D, reaction products with ethylhexanol
RL: TEM (Technical or engineered material use); USES (Uses)
(coatings, electrophoretic, pinhole-free, anticorrosive, for **galvanized** steel)

L65 ANSWER 84 OF 89 HCAPLUS COPYRIGHT 2002 ACS
AN 1983:93798 HCAPLUS
DN 98:93798
TI Process and **composition** for treating **phosphated** metal surfaces
IN Mino, Yasutake; Murakami, Ryoichi; Saito, Koichi
PA Nippon Paint Co., Ltd. , Japan
SO Eur. Pat. Appl., 30 pp.
CODEN: EPXXDW
DT Patent
LA English
IC C23F007-10; C23F007-12; C25D005-34; C25D005-36
CC 55-6 (Ferrous Metals and Alloys)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 61911	A1	19821006	EP 1982-301602	19820326
	R: AT, BE, DE, FR, GB, IT, NL, SE				
	JP 57158397	A2	19820930	JP 1981-44820	19810326
	JP 60017827	B4	19850507		
	FR 2502645	A1	19821001	FR 1982-5238	19820326
	NL 8201265	A	19821018	NL 1982-1265	19820326
	GB 2097429	A	19821103	GB 1982-8993	19820326
PRAI	JP 1981-44820		19810326		

AB The adhesion and corrosion resistance of cationic electrocoatings on steel or **Zn phosphated** surfaces were improved by surface pretreatment with **aq**. soln. contg. (a) .gtoreq.0.05 g/L (as **ZrO2**) of Zr fluoride compd. and (b) .gtoreq.0.05 g/L of myo-inositol **phosphate** [83-86-3] and/or its **water** -sol. salt. The pH 3-7 and molar ratio of a to b from 1:1 to 50:1 were used. **Phosphated Zn** alloy plated on steel was treated by dipping for 4 s in (NH4)2ZrF6-phytic acid soln. at 4.53:1 M ratio with

NH3:phytic acid in soln. at 7.6:1, for adjusting pH to 5.
ST zinc steel surface treatment; **galvanized** steel **phosphating** coating
IT Coating process
(electrochem., of **galvanized** steel, **phosphated** and surface-treated, for electropainting)
IT 7440-66-6, uses and miscellaneous
RL: USES (Uses)
(coating of, for **phosphating** and painting)
IT 16919-31-6
RL: USES (Uses)
(surface treatment in soln. contg., of **galvanized** and **phosphated** steel for electropainting)
IT 12597-69-2, uses and miscellaneous
RL: USES (Uses)
(surface treatment of **phosphated**, with zirconium fluoride for electropainting)
IT 83-86-3
RL: USES (Uses)
(surface treatment soln. contg. zirconium fluoride and, for electropainting)

L65 ANSWER 85 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1982(6):57-416 METADEX
TI Singer Makes the Paint Stick.
AU Driggs, D.
SO Prod. Finish (Feb. 1982) 46, (5), 40-43
DT Journal
LA English
AB An eight-stage metal preparation line assures paint adhesion for air conditioning units made of galvanized and cold rolled steels in the 11/2 to 35 ton range. The metal components are cleaned in a strongly alkaline bath at 140-150 deg F. The cleaned components then pass through a two-stage water rinse. One of the tanks contains a conditioner to aid subsequent coating. The fourth stage is a Zn phosphatizing line at 130 deg F. The metal parts are rinsed in ambient-temp. water followed by a final rinse that is treated to improved paint adhesion. After drying for 25 min at 350 deg F, they are given a 3 min acrylic electrodeposition in a 22 000 gal tank at 150 V. Curing takes place in a gas-fired oven at 375 deg F for approx 45 min.-T.F.F.
CC 57 FINISHING
CT Galvanized steels: Coating; Air conditioners: Coating; Painting; Adhesion
ET F; Zn

L65 ANSWER 86 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1982(10):57-778 METADEX
TI The Pretreatment of Steel and Galvanized Steel for Cathodic Electrodeposition Paint Systems. (Pamphlet).
AU Davis, J.W.
NR 820336
SO Society of Automotive Engineers. 400 Commonwealth Dr., Warrendale, Pa. 15096. 1982. Pp 10
Conference: International Congress and Exposition, Detroit, Mich., 22-26 Feb. 1982
DT Conference; Report
LA English
AB The advent of cathodic electrodeposition in the automotive industry has brought about substantial changes in the pretreatment of steel (1010) and galvanized steel surfaces and the testing thereof. Cyclic scab blistering tests, water soak tests, coating solubility, coating porosity and

ESCA/SEM/Auger surface analysis techniques have provided significant insights into the factors that optimize the performance of zinc phosphate coatings for cationic paint systems. Specifically, the crystal structure and Fe content of the phosphate coating and a Cr-based post-rinse have been shown to make a significant effect upon the subsequent corrosion resistance properties of the phosphate/metal/CED paint system. Further, ESCA/SEM surface analysis and accelerated testing have shown that the processing method substantially affects both the crystal structure and composition of the coating.-AA
CC 57 FINISHING
CT Carbon steels: Coating; Automotive bodies: Coating; Galvanized steels: Coating; Electropainting; Phosphating (coating); Corrosion prevention
ALI 1010 CCA: SCL
ET Fe; Cr

L65 ANSWER 87 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1980(4):57-199 METADEX
TI Surface Finishing Technologies of Window Frames.
AU Bokor, L.
SO Magy. Alum. (Sept. 1979) 16, (9), 261-264
DT Journal
LA Hungarian
AB Surface finishing, priming and coating of AlMg3, steel and hot dip galvanized steel window frames with water dilutable paints are described. Experimental results demonstrated water dilutable paints to lend themselves well to the surface finish of the components. As for Al windows, optimum results may be arrived at by chromate treatment, although a suitable composition of zinc phosphate bath may be used. The endurance of coating depends on the strict observation of the instructions of a suitable -AA
CC 57 FINISHING
CT Aluminum base alloys: Surface finishing; Windows: Surface finishing; Priming (coating); Painting
ALI AlMg3 CCA: AL
ET Al*Mg; Al sy 2; sy 2; Mg sy 2; AlMg; Al cp; cp; Mg cp; Al

L65 ANSWER 88 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1980(11):57-654 METADEX
TI Immersion in a Suspension to Prepare Steel or Zinc Surfaces Before Phosphating.
AU Moskhina, I.A.; Tarantsova, M.I.; Sorkin, G.N.; Be, R.Yu.
SO Izv. Sib. Otd. Akad. Nauk SSSR. [Khim.] (1979) (6), 160-163
DT Journal
LA Russian
AB Abstracted from Ref. Zh. (Korroz.), 1980, (4), K306. A simple and economical method was developed for the preparation of steel and Zn (galvanized steel) surfaces to provide high quality phosphate coatings in a combined phosphating process in a bath contg. H3PO4 6.0, Zn(H2PO4)2.2H2O 30.0, Zn(NO3)2.6H2O 60.0, NaF 3.0, and NaNO2 1.0 g/l. Best results were given by immersion in an aqueous suspension of hopeite (an insoluble Zn phosphate) or sand of 4-8 mu m particle size. The method can be automated.-A.D.M.
CC 57 FINISHING
CT Steels: Cleaning; Galvanized steels: Cleaning; Cleaning; Phosphating (coating); Submerging; Dispersions
ET K; Zn; H*O*P; H3PO; H cp; cp; P cp; O cp; H*O*P*Zn; Zn(H2PO; Zn cp; H*O; H2O; N*O*Zn; Zn(NO; N cp; F*Na; NaF; Na cp; F cp; N*Na*O; NaNO

L65 ANSWER 89 OF 89 METADEX COPYRIGHT 2002 CSA
AN 1979(3):57-136 METADEX